THE CURRENT IMPLEMENTATION STATUS OF THE BOULDER MODEL

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CONTENTS

ABSTRACT

Since its inception just over 50 years ago, the Boulder Model has been the dominant training model in clinical psychology. The model has not been without its critics, however, and many commentators claim that it has not been implemented. Indeed, two alternative models of clinical training have emerged. However, many assertions about the Boulder Model's implementation failure are not well founded. This thesis was undertaken in an attempt to evaluate the current implementation status of the model that sought to define the essential character of the discipline of clinical psychology and ensure that the discipline would adapt to future changes in science, technology and society. In this thesis evidence pertaining to many of the Boulder Conference recommendations is critically reviewed. The evaluation of the implementation status of the Boulder Model presented in this thesis covers the following issues: the nature of the clinical graduates produced by the Boulder Model of training, practitioners' consumption and utilisation of research, indications of scientific behaviour among practitioners, clinical psychology's readiness to adapt to future changes in science, technology and society, and a critical appraisal of the nature of the clinical graduates produced by both the professional school and clinical scientist models. Critical attention is also given to the three philosophies of science most relevant for clinical psychology—empiricism, social constructionism and scientific realism—in an effort to clarify the critical role theories of science play in guiding both clinical science and clinical practice. The overall conclusion drawn in this thesis is that the Boulder Model has been implemented, albeit with two significant exceptions. Two possible future clinical training scenarios are depicted and the implications of these scenarios are critically explored. Based on the results of the thesis conclusions, some brief recommendations are made about how clinical psychology could strengthen its commitment to the spirit of the Boulder Model.

Introduction

Prior to the 1940s no systematic, unified, or focused training in clinical psychology existed in the United States (Raimy, 1950; Shakow, 1965), or probably anywhere else for that matter. Similarly, the activities of applied psychologists working outside of the universities and laboratories that had educated them were not as yet governed by professional bodies and relevant legislation (Leahey, 1991). In 1944, at the instigation of the American Psychological Association (APA) and the relatively newly formed American Association for Applied Psychology, a committee was charged with looking into the training of clinical psychologists (Shakow, 1969). This committee subsequently recommended several experimental training programmes in clinical psychology be established to identify what was "desirable and necessary in clinical training" (Shakow, 1969, p.147). However, before the adequacy of these programmes could be carefully explored, World War II began, and with it a sense of urgency to train more mental health professionals to meet the anticipated needs of war veterans developed (Leahey, 1991). In addition to running its own clinical programmes, the Veterans Administration (VA) was prepared to provide internship positions and supervision for clinical students. Furthermore, the VA offered to provide funding for clinical training programmes that were approved by the APA, and sought the APA's co-operation in identifying such programmes (Laughlin & Worley, 1991).

The Committee on Training in Clinical Psychology, headed by David Shakow, produced a report in 1947 which proposed a scientist-practitioner identity for the new breed of professional clinical psychologist and laid out general clinical education and training guidelines (Shakow, 1969; Raimy, 1950). Two years later, the Boulder Conference was held in Colorado (Raimy, 1950). This conference, which fully endorsed the Shakow Report, was the first national conference to be convened in the United States to work out what needed to be done to craft a responsible and socially valuable service profession in clinical psychology and indicate how this new discipline should proceed (Raimy, 1950). As a result of the two weeks conference participants spent wrestling with the issues on their formidable agenda, approximately 70 recommendations were made (Raimy, 1950). Recommendations covered a raft of domains in an attempt to chart a developmental trajectory for the discipline of clinical psychology as a whole, and the identity of clinical psychologists in particular. The domains conferees discussed included, for example, social needs and clinical psychology, training in the face of changing

science and society, kinds and levels of training for clinical psychology, professional ethics, background preparation for training in clinical psychology, curriculum issues, research and psychotherapy training, internships, student selection and evaluation, relations between clinical psychology, related professions and government agencies, accreditation of training providers, licensing and certification issues, and staff training. Hence, the Boulder Model is enormous in scope and includes the education and training of clinical psychologists, the type of product identified as a clinical psychologist, and the character of the discipline of clinical psychology as a whole. (In fact, the Boulder Model is far greater in scope than is often acknowledged).

Whether the Boulder Model has been successfully implemented, or even implemented at all, continues to be the topic of much scholarly writing. The general consensus is that the model has remained an ideal rather than a reality (e.g., Barlow, Hayes & Nelson, 1984; Stricker, 1992; Trierweiler & Stricker, 1998). However, there are good reasons why these claims should be challenged. First and foremost, rhetoric cannot substitute for evidence, yet implementation failure claims continue to be made in the absence of data to support them (e.g., Trierweiler & Stricker, 1998). Second, many implementation failure claims are grounded in a narrow conception of the model and crude measures of a single variable, such as the modal publication rate of practitioners (e.g., Pfeiffer, Burd & Wright, 1992). Most important of all, however, is the apparent lack of critical, penetrating and systematic attention to the Boulder Model's comprehensive nature and a realistic appreciation of the time required for many of its recommendations to be brought to fruition.

In response to concerns about the correctness of assertions that the Boulder Model has not been implemented, this thesis was undertaken in an effort to clarify the model's current implementation status. The thesis is organised into two parts and ten chapters. Part 1 comprises two chapters. In Chapter 1 the Boulder Model is outlined and a brief review of some of the major conferences that have been held since the Boulder Conference is provided, along with some discussion of two alternative training philosophies to the Boulder Model. In Chapter 2 several arguments put forward to support assertions that the Boulder Model has not been implemented are summarised and challenged, and some of the actual similarities and differences between Boulder Model programmes and practitioner-oriented programmes are spelled out. Part 2 of the thesis evaluates the implementation status of the Boulder Model. Chapters 3 through to 7 attempt to answer the research questions that naturally emerge from an understanding of the Boulder Model and its broad scope. Specifically, whether the Boulder Model of education and

training in clinical psychology produces the kinds of graduates it is supposed to produce is a question that is tackled in Chapter 3. The research consumption and utilisation practices of clinical practitioners is explored and critically discussed in Chapters 4 and 5. The extent to which clinical practitioners conduct their professional activities in ways that are further indicative of scientific behaviour (e.g., the psychometric devices favoured by practitioners, adherence to diagnostic criteria) will be examined and critically discussed in Chapter 6. Boulder conferees made several recommendations that they reasoned would place the discipline of clinical psychology in a good position to adapt to changes in science, technology and society. The implementation status of these recommendations is explored in Chapter 7. Considerable concern about the scientific status of clinical psychology was expressed at the Boulder Conference. Traditionally, clinical psychology has relied on an empiricist philosophy of science to inform its approach to strengthening its scientific knowledge base. This philosophy of science is critically discussed in Chapter 8. Also in this chapter, two major alternative philosophies of science, social constructionism and scientific realism, are critically discussed in order to highlight which of these alternative theories of science can most enrich clinical science and practice. In Chapter 9 I return to the issue of clinical training and review empirical evidence about the types of clinical graduates produced by the three training models discussed in the second chapter. In the final chapter (Chapter 10), the central findings of this thesis are summarised. In addition, two future clinical training scenarios are outlined and their implications for clinical psychology briefly explored. Chapter 10 concludes with some recommendations for the future.

Throughout the thesis considerable effort is made to do justice to the comprehensiveness of the Boulder Model and to base claims on as much relevant empirical evidence as possible. Moreover, it will be argued that the evidence reviewed herein points to the conclusion that, for the most part, the Boulder Model currently enjoys an implementation status that is realistically in accord with the Boulder Conference recommendations.

PART 1

CHAPTER 1

Overview of the Boulder Model

Clinical psychology and social needs

On the basis of the literature concerned with the incidence of mental disorders, the anticipated needs of war veterans, and changing public attitudes about how people affected by mental ill-health were treated, Boulder conferees believed that trained clinical psychologists could contribute to meeting the mental health care needs of society. The formal position regarding the contributions clinical psychologists could make on this matter is reflected in the following extract from the Conference Report.

> The basic needs of our society for the services of clinical psychologists are of two major kinds:
> a. Professional services to:
> (1) Individuals through corrective and remedial work as well as diagnostic and therapeutic practices
> (2) Groups and social institutions needing positive mental hygiene programs in the interest of better community health
> (3) Students in training, members of other professions, and the public through systematic education and the general dissemination of information
> b. Research contributions designed to:
> (1) Develop better understanding of human behavior
> (2) Improve the accuracy and reliability of diagnostic procedures
> (3) Develop more efficient methods of treatment
> (4) Develop methods of promoting mental hygiene and preventing maladjustment
> (Raimy, 1950, pp 20-21).

Professional training and changing science and society

One could be forgiven for thinking that the above extract implied that clinical psychology already had a solid knowledge base from which it could extend itself in an effort to fulfil these promised contributions. In reality, however, conferees were aware of how much work needed to be done to strengthen the discipline's scientific and professional credentials. For example, the following extract from the conference report demonstrates such an acknowledgement:

> While the clinical psychologist has faith in the value of his service efforts, he is increasingly concerned with the improvement of the scientific status of his profession through meeting the needs for validation in the following areas.
> (1) Personality theories

(2) Research methodology and validity criteria
(3) Training procedures
(4) The clinical psychologist himself as a participant observer and professional practitioner
(5) The instruments and techniques used in clinical practice (Raimy, 1950, p.27).

Furthermore, conferees demanded that clinical science, to the best of its ability, commit itself to addressing problems that were of major import to society, including validating clinical techniques, and make every effort "to fit theory to facts [and] methodology to function" (Raimy, 1950, p.27).

Kinds and levels of training

Boulder conferees addressed themselves to the question of what degree level was most appropriate for the new clinical psychologist trained within a Boulder Model framework. Four possible levels of training were considered before it was resolved that clinical psychologists, to be capable of independent professional work, should obtain "...the doctoral degree based upon graduate education in Clinical Psychology received from a recognised university...[t]he phrase 'doctoral degree' was purposely included...rather than the more specific "Ph.D." (Raimy, 1950, p.37).

Professional ethics and relations with other health professionals

Conferees argued that it was an ethical imperative for clinical psychologists to form co-operative working relationships with allied professions. This was seen as one means by which individuals seeking services from mental health care teams would be most likely to receive the best treatment possible. This position is reflected in the following resolution:

> Because of: (a) the extreme complexity and variety of problems presenting themselves for solution, (b) the equally wide variety of skills and techniques required for the most effective service to the individual, and (c) the fact that the current training of any one profession cannot possibly ensure mastery of all of these techniques - we urge clinical psychologists to adopt as a principle of practice the establishment and maintenance of active and effective liaison with members of allied professions in all service functions (Raimy, 1950, p.53).

Educational preparation for clinical psychologists

Boulder conferees made several resolutions with respect to the education they believed was most suitable for students aiming to obtain a doctorate in clinical psychology. Two years before the Boulder Conference, a committee lead by David Shakow had been established to formulate a graduate training programme for clinical psychologists. Boulder conferees unanimously

supported the *Shakow Report* which was also included as an appendix to Raimy's (1950) Boulder Conference report.

Although conferees maintained that each university involved in training clinical psychologists was free to organise a common core curriculum in different ways, they nonetheless resolved that there should be "...a common core of knowledge and skill in basic psychology" (Raimy, 1950, p. 61). Furthermore, a common core curriculum would ensure that graduates would "...conceive of their profession as an applied branch of the general field of psychology rather than as a separate profession [therefore maintaining the profession's]...identification with the broader field of general psychology (pp 61-62). Therefore, "...this core curriculum...should...centre around the areas of theory construction, conceptual tools and scientific methodology" (p. 61).

Research training and Boulder programme graduates

The decision to train clinical psychologists as both scientific researchers and clinical service providers (practitioners) constitutes one of the most critical features of the Boulder Model. Individuals trained within the Boulder Model framework were to be characterised as scientist-practitioners. What such an identity amounted to, and why this decision was made, is reflected in the following extracts from Raimy's (1950) report of the conference proceedings and in the accompanying commentary:

> Because research competence is acquired largely by doing research, orientation to research problems should be continuous throughout the graduate program...(p.83)...*Students should be trained in careful definition of concepts as a check upon the "intuitive" judgments often required in...practical situations* (original italics)...too often, however, clinical psychologists have been trained in rigorous thinking about nonclinical subject matter, and clinical problems have been dismissed as lacking in "scientific" respectability. As a result, many clinicians have been unable to bridge the gap between their formal training in scientific thinking on the one hand and the demands of practice on the other...(p.86).

The education and training in both science and practice was to be broadly based so as to produce generalists as opposed to narrowly trained specialists, such as psychometricians. With a broad knowledge base novice graduates would enter the field of clinical psychology equally well prepared to concentrate their future careers on either (a) the clinical research field, or (b) clinical practice, or (c) on both activities. Those whose careers were more practice orientated would deal with clinical problems in a scientific manner, and critically evaluate and consume new research as it appeared in the literature in order to improve their effectiveness in service delivery. These issues are summarised thus:

> ...the Conference deliberately decided to emphasize the importance of broad, fundamental training...as one means of insuring that clinical psychologists will have the opportunity to develop a *field* (original italics) rather than a narrow specialty (Raimy, 1950, p.30).

And a broadly based programme could

> ...expect to produce sound psychologists who can increase their skills and competence through experience and self-training (Raimy, 1950, p.192). There cannot be over indoctrination in the scientific attitude (p.86)...so much so that the student is left with the set constantly to ask "how" and "why" and "what is the evidence" about the problems (Raimy, 1950, p.219).

Boulder conferees hoped that by training students in both the realities of clinical practice and in the nature of conducting scientific research, graduates would conduct their future work activities of service provision, clinically relevant scientific research, or both, in a way that would continue to reflect a commitment to each orientation. Hence, the term 'scientist-practitioner' is perhaps best understood as a unifying concept. For example, the clinical scientist, having been exposed to the realities of clinical problems throughout the training programme, would be expected to conduct and publish research that attempted to address realities that were peculiar to clinical psychology. Similarly, for clinical practitioners, the scientific aspect of their training would be reflected in practice in ways that were characteristic of a researcher. Finally, Boulder conferees believed that some graduates would be capable of combining both scientific research and clinical practice in a way that reflected each of these endeavours to their fullest extent. The principal reason behind the proposal for a generalist training was to ensure the long term survival of the clinical profession and clinical science (Raimy, 1950). Conferees believed that a general training in science and practice would ensure that clinical psychology would be in a strong position to readily adapt to changes in science, social needs, and changes in related professions. In addition, individuals would be capable of developing expertise and/or specialisations in the course of their careers that were well grounded in both general psychological science across the life-span and in clinical psychology.

Components of the Boulder Model programme

The most succinct and articulate exposition of the various components of the Boulder Model has been provided by Belar and Perry (1992). These components are summarised as follows:

A. The Scientific Component

(1) Didactic: Instruction in the following areas is considered essential within the model's framework so that students are able to develop mastery of material across the normal and abnormal dimensions of behaviour from a life-span perspective, and remain sensitive to gender, ethnic, age, religious and life-style differences.

(a) Research design, evaluation, methodology and statistics.

(b) Measurement reliability, validity and theory underpinning psychometric devices.

(c) History and systems of psychology.

(d) The biological, cognitive-affective, social and individual bases of behaviour.

(e) The theoretical bases underlying assessment strategies and devices.

(f) Intervention alternatives, underlying theory, and their applicability, reliability and efficacy. Instruction in this area is also to include knowledge of process mechanisms, evaluation of intervention designs and the development of novel interventions.

(2) Experiential: Belar and Perry (1992) define 'experiential' as "...the degree to which a student is involved in learning by doing, participating, and contributing to knowledge" (p.73). Research projects, classroom or tutorial discussions and relevant practicum work are examples of the scientific-experiential component. The process should start immediately, remain ongoing and finally culminate in the dissertation.

B. The Practice Component

(1) Didactic: The instructional dimensions for the practice component involve strategic and tactical education in applying scientific thinking, the relevant scientific literature, problem solving, and hypothesis testing in practice. Central aspects of this component include:

(a) Developing communication and interviewing skills.

(b) Developing case formulations and interventions that are informed by the scientific literature, and in accordance with valid assessment regimes, and ethical and legal guidelines.

(c) Developing an appreciation for iatrogenic factors and the fact that the clinician's personal characteristics influence client-professional interactions.

(d) Affiliations with appropriate organisations are to be encouraged as part of the socialisation process of students.

(2) Experiential: Knowledge application, data collection and the communication of such is managed systematically, with scientific methods integrated into all aspects of practicum work in the programme. Evidence for such integration should be observable in role models and through the generation of novel ideas. Students should be exposed to many different populations, in a variety of settings, and complete an internship. The placement facilities need also to provide students with appropriate role models and opportunities for research.

Education and Training System Features

1. Programme faculty should be full-time university faculty providing appropriate role modelling and mentoring. Teaching also is to reflect the integration of science and practice as is the input from placement/internship staff to the programme.
2. The setting for the programme is an accredited university with full-time scientist-practitioner faculty, where research opportunities are encouraged and provided.
3. Each student is to be evaluated and monitored throughout the programme, both formally and informally. The programme and internship faculty must also evaluate the implementation status of the scientist-practitioner model with respect to their own training programme.

Rationale behind the scientist-practitioner model

One reason for training students in both research and practice was to ensure that they would develop a scientific orientation to clinical practice and a research orientation that was relevant to practice. In addition, Boulder conferees were well aware of the paucity of knowledge regarding many of the substantive areas of clinical psychology, as well as the validity of the techniques of the times, such as psychoanalysis and projective personality tests. Thus, a major rationale for educating and training students in both science and practice was to ensure that these weaknesses could be addressed in a scientifically respectable manner by persons with an appropriate grounding in clinical problems. From a funding perspective, Boulder participants also recognised that research support was more likely to be forthcoming for a field that could demonstrate service effectiveness, which, it was believed, would be improved through the implementation of the model. Boulder participants gave one final reason for the dual training; there was no evidence to suggest "...that interest and competence in both areas are unlikely to occur in the same person. There is considerable evidence that certain individuals are capable of both" (Raimy, 1950, p.80).

While these are the documented reasons contained in Raimy's (1950) report for training clinical psychologists to do research, as well as have their professional activities well grounded in the scientific literature, others have argued that there were some powerful socio-political motives behind adopting this model over the professional school model.

First, psychiatrists, trained in the medical tradition, were a powerful force behind the call for more mental health professionals to treat the needs of combat veterans following World War II (Sarason, 1981). Thus, professional psychologists needed to distinguish themselves from their closest rivals, and to be able to claim that their contribution to the mental health field was different from that of psychiatrists (Frank, 1984; Leahey, 1991; Sarason, 1981). As psychiatrists were generally not trained to conduct research, the scientist-practitioner model provided the solution to this problem (Frank, 1984; Sarason, 1981; Leahey, 1991).

Second, the unity of psychology itself and its public image was under threat (Leahey, 1991). Thus, educating and training clinical psychologists to be scientists first, who shared with academic psychologists a common educational core, was seen as the means by which tensions between the two factions (academic psychologists and professional psychologists) would be reduced, if not healed (Frank, 1984; Leahey, 1991).

National conferences and the emergence of alternative training models: 1965-1990

For the first fifteen years after the Boulder Conference, subsequent conferences continued to strongly endorse the Boulder Model philosophy of training clinical psychologists in the conduct of research and practice (Frank, 1984). However, support for the Boulder Model's philosophy of clinical training began to wane somewhat in 1965 when participants at the Chicago Conference argued that, although the conduct of research was a desirable part of the training for those who would eventually go into practice, it was not necessary. It has been argued that the impetus behind this change in emphasis came from a minority of Boulder Model graduates who had entered careers in practice but felt that their Boulder Model training had not prepared them well enough for the demands of practice (Fox & Barclay, 1989).

By the early 1970s a number of practitioner-oriented programmes had been established with the aim of training students for clinical practice, rather than for both research and practice. The development of these programmes was underpinned by (a) the belief that training for clinical practice did not need to include experience in the *conduct* of research, and (b) the contention that

Boulder Model programmes had been mostly producing clinical researchers, at the expense of producing sufficient numbers of graduates who went into practice (Korman, 1974).

Those who attended the 1973 Vail Conference endorsed the belief that training students for careers in practice would be better achieved by abandoning the idea of training all clinical psychologists to be both scientists and practitioners. They also supported the establishment of a professional credential for graduates from practitioner-oriented programmes, namely the Doctor of Psychology Degree (PsyD) (Korman, 1974). However, philosophical differences underlying training models is one thing; the extent to which these differences may square with reality is another, as we shall see more clearly in Chapter 2. Importantly, it is worth noting that PsyD programmes did not come to dominate the clinical training landscape in the sense that there are substantially fewer of these programmes than Boulder Model programmes. For instance, of the 185 APA-accredited clinical programmes listed in 1995, only 28 were PsyD programmes (Weinstein & Rossini, 1998). Similarly, of the estimated 2,000 clinical doctorates currently awarded per year (Norcross, Sayette, Mayne, Karg & Turkson, 1998; Sheridan, Matarazzo & Nelson, 1995), the number of PsyD degrees awarded are in the minority, although reports are inconsistent regarding the size of the minority. For instance, Sheridan, et al. (1995) report that PsyDs comprise only 16% of the estimated 2,000 doctoral degrees awarded per year, whereas others put the figure between 30% (600) to 35% (700) for the same total number of clinical doctorates awarded in the same time period (Norcross, et al., 1998). Complicating matters further is the fact that some practitioner-oriented programmes now culminate in the PhD, rather than the PsyD (Mayne, et al., 1994; Sanchez-Hucles & Cash, 1992). Furthermore, professional schools now award just under fifty percent of all clinical doctorates (Belar, 1998). It is more likely that the proportion of PsyD clinical doctorates currently awarded per year are closer to the figures quoted by Norcross, et al. (1998) because (1) PsyD programmes outnumber PhD practitioner-oriented programmes (Mayne, et al., 1994), and (2) PsyD programmes accept and graduate more students relative to PhD practitioner programmes (Mayne, et al., 1994). Thus, if we take 'just under half' of all clinical doctorates awarded by professional schools (Belar, 1998) to mean 48%, and the mid-point of the two estimates provided by Norcross, et al. (1998), it can be reasonably inferred that of the 48% of clinical doctorates awarded by professional schools, 15.5% are PhD degrees.

In 1981 another conference was held in Virginia Beach (Watson, Caddy, Johnson & Rimm, 1981). The main thrust of this conference was to address concerns relating to standards of the

newer practitioner-oriented programmes, and curricula and organisational settings (Watson, et al., 1981). Conferees also called for evaluation research to be undertaken into the effectiveness of practitioner-oriented programmes. However, twenty years later published evaluation studies are still scarce (e.g., Cherry, Messenger & Jacoby, 2000). A second practitioner-oriented conference was held in 1986 at Mission Bay (Fox & Barclay, 1989; Sheridan, et al., 1995). A core curriculum for clinical training was agreed to which was not dissimilar to the one suggested by Boulder conferees (Fox & Barclay, 1989).

The Utah Conference of 1987, which was convened to discuss graduate education in psychology generally, also endorsed the Boulder Model's ideals for education and training in clinical psychology (Bickman, 1989). It was also recommended that APA accreditation standards become more flexible to accommodate the differences in the various applied psychology training programmes (e.g., counselling psychology, school psychology) and graduate programmes in general psychology ('Resolutions Approved", 1987; Sheridan, et al., 1995). It was also resolved that doctoral programmes run by professional schools should seek to affiliate themselves with an accredited university as a means of ensuring less variation in the quality of education across these institutions.

Three years after the Utah Conference, a conference specifically dealing with education and training in clinical psychology was held in Gainesville (Belar & Perry, 1992). Emphatic support was given by participants at this conference to the Boulder Model training philosophy. The model itself was succinctly and clearly described and it was suggested that the APA could make use of this document in its accreditation activities (Belar & Perry, 1992; Sheridan, et al., 1995).

Although apparently not the result of a national conference on the education and training of clinical psychologists, Routh (2000) reports that some universities recently established PhD clinical scientist programmes. These programmes operate within the APA-accreditation framework and include "hands-on clinical training" (Routh, 2000, p. 281), but more for the purposes of training clinical researchers than for training practitioners. These programmes are a recent development, have a relatively low intake (Mayne, Norcross & Sayette, 1994) and have, therefore, not yet produced large numbers of graduates.

In sum, three philosophically different training models in clinical psychology currently exist. At the level of educational philosophy, the differences among the models seem to be a matter of

different emphasis being given to the same features. The philosophy of the Boulder Model programme stresses the importance of preparing all clinical psychologists for research and practice, practitioner-oriented programmes espouse a more practice based training, and clinical scientist programmes place more value on training for clinical research. These philosophical differences notwithstanding, a good case can be made for attempting to evaluate the implementation status of the Boulder Model.

First, Boulder programmes have outnumbered alternative clinical programmes since 1950 and continue to be more prevalent than both PsyD programmes or PhD practitioner-oriented programmes, and the more recently developed clinical scientist programmes (Mayne, et al., 1994; Norcross, et al., 1998; Weinstein & Rossini, 1998).

Second, as will be discussed more fully in the next chapter, the actual differences between practitioner-oriented programmes and Boulder Model programmes do not appear to be as substantial as might be expected on the basis of their philosophical differences, since both programmes endorse a comparable core curriculum and both *require* students to conduct dissertation research (Sanchez-Hucles & Cash, 1992; O'Sullivan & Quevillon, 1992).

Third, in the vast majority of cases, published empirical studies examining the activities of practicing clinical psychologists predate the development of clinical scientist programmes. Thus, the outcomes of these studies most probably pertain to graduates who have trained within the Boulder Model framework. On the other hand, it needs to be acknowledged that while clinical *programmes* may be compatible with the spirit of the Boulder Conference in some basic respects, differences may emerge at the level of the graduates these programmes produce. This issue is addressed in Chapter 9. The points just raised provide partial justification for the viability of evaluating the implementation status of the Boulder Model. However, the rationale for evaluating the model's current implementation status is made even stronger in the next chapter when some of the arguments put forward purporting to demonstrate that the Boulder Model has failed to be implemented are critically examined.

CHAPTER 2

The Boulder Model: A reality or an ideal?

Whether the Boulder Model has been realised, or whether it still remains an ideal after more than fifty years, continues to be the subject of much scholarly writing. Overall, there appears to be widespread opinion that the Boulder Model has not been implemented (e.g., Barlow, et al., 1984; Trierweiler and Stricker, 1998). However, when many of these views are critically examined, they are found wanting.

It will be recalled that the Boulder Model espouses the view that clinical practitioners and clinical scientists should contribute to knowledge. The Boulder Model also expected that clinical practitioners would spend some of their work time engaged in research activities. Hence, one of the most frequent lines of support used to bolster the claim that the Boulder Model has not been implemented are findings that show the modal rate of research publication by clinical practitioners has consistently been found to be zero (e.g., Barlow, et a., 1984). This means of examining the extent to which practitioners contribute to knowledge and engage in research activity may be misleading, as others have pointed out (e.g., Belar & Perry, 1992; Belar, 2000).

Modal rates of publication tell us that 'zero' is the number of publications endorsed by the largest number of respondents. However, the mode does not tell us how many respondents report a zero publication rate, which would obviously be far more informative, as would data pertaining to the mean and median. Also, publication rates may vary according to the type of publication specified in the study (e.g., journal article, book, book chapter) such that one type of publication may be more common than another. In addition, it is not uncommon for up to 60% to 90% of manuscripts submitted for publication by psychological scientists to journals published by the APA to be rejected (Lykken, 1991). Hence, over reliance on the publication rates as a measure of the extent to which clinical practitioners engage in research-related activities has the potential to lead to erroneous conclusions. Erroneous conclusions relating to clinical psychologists' contributions to knowledge may also arise when publication rates of this population are not compared to the publication rates of appropriate comparison groups.

Barlow, et al. (1984) argued almost two decades ago that the Boulder Model of training clinical psychologists had not yet been implemented. In particular, these authors claimed that practitioners failed to reflect a commitment to the Boulder Model in three important respects. First, Barlow, et al. (1984) stated that practitioners failed to consume scientific research, or alter their practice activities in the light of research findings. Second, these authors asserted that practitioners failed to empirically evaluate the effectiveness of their own interventions. A third failing of practitioners, according to Barlow, et al. (1984), was that they generally did not contribute to knowledge through the production and publication of novel data. Although Barlow, et al. (1984) focused mainly on the activities of clinical practitioners, they also asserted that clinical scientists paid little, if any, attention to the professional literature to help ensure that clinical science remained relevant to practice. These are damning claims indeed, and, if correct, would significantly undermine the Boulder Model's current implementation status.

It has been 17 years since Barlow, et al.'s (1984) claims were published and most of the literature Barlow et al. (1984) called upon was published in the late 1960s-1970s. As the Boulder-style discipline of clinical psychology was still rather young, it would not be surprising if the early literature indicated that the model had not been implemented with unequivocal success after roughly only 5 groups of clinical psychologists had graduated from the new programmes. For instance, Orlinsky (1994) argues that in the early years following the Boulder Conference there was little clinical literature available for practitioners to read such that their consumption rates were understandably less than one might reasonably expect of today's practitioners.

Writing more recently, Stricker (1992) also asserts that the Boulder Model has not been implemented. He states that neither scientist-practitioners, nor clinical scientists, nor well trained practitioners are being produced by Boulder Model programmes. A number of points can be raised which undermine the strength of these assertions.

Stricker (1992) supports his first assertion, that Boulder Model programmes have failed to produce scientist-practitioners, by suggesting that it is rare to see one and the same person conduct both scientific research and provide professional services simultaneously. However, as has been made clear in the previous outline of the Boulder Model, conferees expected that only "some" graduates would combine both activities to their fullest extent. Hence, it is not

inconsistent with the Boulder Model to find that those who simultaneously combine both activities are considerably less in number in relation to the numbers who pursue the other two career paths. In addition, it is not unreasonable to imagine that during the course of their working years some graduates may change their primary career focus from practice to research, or vice versa, so that over the working life-span of an individual the dual roles may be expressed. For example, Belar (1998) states that the majority of programme faculty, according to the APA Committee on Accreditation, are currently expected to have obtained both clinical and research credentials, with the majority of current clinical programme faculty also engaged in delivery of clinical services in addition to their teaching and research roles.

The claim that clinical scientists are not being produced by Boulder Model programmes (Stricker, 1992) is supported by citing research that shows clinical academics produce minimal research in the sense that the majority of the research produced is conducted by only a few. However, this state of affairs has been shown to be characteristic of all sciences, including psychological science (Lykken, 1991). For example, Conway (1988) reports that more than half of the general scientific literature is produced by only 5% of scientists. Stricker's (1992) claim can hardly be taken as compelling evidence demonstrating that the Boulder Model has failed to be realised in this respect.

It is with reference to one sixteen year old publication that cites graduate dissatisfaction with the practitioner side of their training, that Stricker (1992) supports his claim that the Boulder Model is not producing well trained practitioners. However, other studies that have attempted to gauge the opinions of graduates regarding how well the programme equipped them for practice tend to indicate that opinions on this matter are not as uniform, or as static, as Stricker (1992) implies. For example, Martin (1989) found that the vast majority of clinical psychologists, with either an academic affiliation or a non-academic affiliation, reported feeling satisfied with the scientist-practitioner model of training. The very different results obtained by Martin (1989), as compared with those cited by Stricker (1992), also highlight the importance of adopting a time series approach to collecting data on this matter in acknowledgement of the field's relative youth and continuing development (Byrne & Reinhart, 1990). In addition, Belar (1998) reports that students training within the Boulder framework typically receive 1,500 hours of supervised clinical experience in addition to the experience gained during the internship period. Furthermore, as Tyler and Clark (1987) point out, drawing conclusions about the value of training clinical psychologists within the Boulder Model based on subjective and retrospective

reports of graduates does little to provide strong evidence for, or against, its value as a training model. As these authors argue, much stronger evidence for the value of training within the model would include, for example, an examination of the relationship between the model of training and relevant variables related to performance to do with professional activities. It must also be remembered, that the Boulder Model never laid claim to providing a training that produced "finished" graduates, or that every member of the field would necessarily demonstrate the same strengths in all domains that comprise the heterogeneous activities of the discipline.

Twenty-eight years ago at the Vail Conference, advocates of the professional school movement expressed the view that the Boulder Model espoused an inappropriate training philosophy for educating clinical practitioners (Korman, 1974). Interestingly, more recent advocates of the professional school movement have proudly announced that practitioner-oriented programmes have managed to implement the Boulder Conference ideals more convincingly than Boulder Model programmes (Trierweiler & Stricker, 1998)! This claim came barely six years after Stricker (1992) had reiterated the view that the Boulder Model had not been implemented. In other words, Trierweiler and Stricker (1992) claim that the Boulder Conference ideals have not been implemented by Boulder Model programmes, but have been implemented by professional schools. The reader is asked to accept this claim primarily on the strength of the assertion that "two distinct lines of training exist" (Trierweiler & Stricker, 1998, p. 4). However, when one acknowledges the paucity of empirical literature that is available regarding the similarities and differences between practitioner-oriented programmes and Boulder Model programmes, it is far obvious that this claim is true.

For one thing, Trierweiler and Stricker (1998) speak of practitioner-oriented programmes as if they are all the same when, in fact, the practitioner-oriented training landscape is somewhat diverse. For instance, some PsyD programmes are university-based while others are freestanding, (Yu, Rinaldi, Templer, Colbert, Siscoe, and Van Patten, 1997). Programmes awarding the PsyD entail a course of study that is more practice focused, and a research dissertation that does not entail the collection of data, or the use of statistical methods of analysis (e.g., theoretical work, case studies, literature reviews) (Sanchez-Hucles & Cash, 1992). Other practitioner-oriented programmes lead to the PhD, which involves a course of study that may be more balanced in the emphasis given to science and practice (Mayne, et al., 1994), and includes the completion of dissertation involving the collection of empirical data and statistical methods of data analysis (Sanchez-Hucles & Cash, 1992). Finally, a few practitioner-oriented

programmes offer either the PsyD or the PhD. (Sanchez-Hucles & Cash, 1992; Weinstein & Rossini, 1999).

Regarding overlap between Boulder Model programmes and practitioner-oriented programmes, it has already been noted in Chapter 1 that the two programme types share a common core curriculum (Bourg, Bent, Jones, McHolland & Stricker, 1987, cited in Fox & Barclay, 1989; Mayne, et al., 1994; Peterson, 1985). Of equal import is the fact that both types of programmes endorse a comparable list of required or recommended preparatory courses for admission into clinical programmes (Mayne, et al., 1994). Although Mayne, et al. (1994) point out that a course in personality is far more likely to be required or recommended for admission into a PsyD programme, the difference seems trivial, given that courses in personality theory and personality assessment are required courses in many Boulder Model programmes (O'Sullivan & Quevillon, 1992). On the other hand, although Boulder programmes recommend a course in group therapy (O'Sullivan & Quevillon, 1992), a recent study found that less than a third (27%) of the programmes offered such a course in the 1996-1997 academic year, whereas all practitioner-oriented programmes had done so during that time (Weinstein & Rossini, 1999). However, this difference may also be trivial as internship supervisors have been found to rate the majority of interns from both types of programme as at least adequate in this area of practice (Snepp & Peterson, 1988).

In addition to the similarities between professional school models of training and the Boulder Model of training that have already been mentioned above, there are other objective criteria that speak to the amount of overlap between Boulder Model programmes and practitioner-oriented programmes. For example, scores obtained by applicants on the Graduate Record Examination (GRE), along with the undergraduate Grade Point Average (GPA), are two measures frequently used by clinical programmes as an aid in selecting applicants for entry into the programmes (Mayne, et al., 1994; Yu, et al., 1997). Specifically, average total GRE scores (Verbal scale, Quantitative scale and the Advanced Psychology Test) of 1619, 1733 and 1744 are preferred (or sometimes required) for entry into PsyD programmes, PhD practitioner-oriented programmes and Boulder Model programmes, respectively (Mayne, et al., 1994). It has been found that differences in preferred mean GRE scores for entry into clinical programmes are statistically significant, but the meaningfulness of this finding is unclear given that "the difference ...amount[s] to roughly one half of one standard deviation" (Mayne, et al., p. 810). Moreover, a recent comparative study found no statistically significant differences between mean GRE scores

obtained by students who actually gained acceptance into either a PsyD programme or a PhD programme (Norcross, et al., 1998). Moreover, an average total of 1889 on the GRE Verbal and Quantitative Scales and the Psychology Test had been achieved by these students. Thus, it can be inferred that in reality both types of programme admit students who achieve much higher GRE scores than their respective preferred minimum scores. Thus, whether admission standards associated with practitioner-oriented programmes are consistently and substantially lower for practitioner-oriented programmes relative to Boulder Model programmes in practice is likely to vary. Differences may have always existed between the average GRE score required (or preferred) for admission into a clinical programme and the average GRE score obtained by students who actually win acceptance into the programmes. Furthermore, the national distribution of GRE scores obtained by applicants is likely to vary year by year. In some years there may be little difference between the average GRE scores of successful applicants to the different clinical programmes, while in other years differences may be more pronounced due to differences across programmes in terms of their minimum GRE score preferences, coupled with fewer numbers of students achieving higher GRE scores than the preferred minimum. What is clear is that PsyD programmes accept more students into their programmes than do PhD programmes (Mayne et al., 1994; Norcross et al., 1998).

Students' undergraduate grade point average (GPA) is the other quantitative factor taken into account by programmes when selecting potential clinical trainees (Mayne, et al., 1994). Statistically significant differences have been found between programme type and their preferred minimum GPA (Mayne, et al., 1994). Practitioner-oriented PhD programmes prefer a relatively higher GPA as contrasted with PsyD programmes, and Boulder Model programmes prefer a relatively higher GPA as contrasted with PhD practitioner-oriented programmes (Mayne, et al., 1994). Similarly, Norcross et al. (1998) found statistically significant differences in the GPAs of students who were actually accepted into PsyD programmes and PhD programmes. However, the difference is trivial as the average GPA of the PhD group was only .2 higher than the average GPA of the PsyD group (Norcross, et al., 1998).

There are differences between the programmes in terms of the tertiary qualification they prefer their applicants to have achieved prior to admission into the programmes, and the number of trainees accepted into the programmes (Mayne, et al., 1994). In 1991, PsyD, PhD practitioner programmes and Boulder Model programmes averaged an annual acceptance rate of 23%, 10%, and 10%, respectively. Thus, PsyD programmes have a much higher acceptance rate than the

other two types of clinical programmes. More master's level applicants than baccalaureates are accepted into practitioner-oriented programmes, whereas the vast majority of applicants accepted into Boulder Model programmes hold a bachelor's degree (Mayne, et al., 1994). Presumably, therefore, successful applicants to a practitioner-oriented programme have completed some semi-independent research prior to admission into the programme, whereas successful Boulder Model applicants have not. In addition, Wisocki, Grebstein and Hunt (1994) report that some APA-accredited university clinical programmes attempt to cater for as many as 100 students, while others cater for fewer than 40 students. The average university clinical programme has a ratio of 55 students to 10 clinical faculty (Wisocki, et al., 1994). These authors did not distinguish between programmes that lead to a PsyD degree or a PhD degree. However, freestanding professional schools leading to either the PhD or the PsyD may cater for over 300 students (Chambers, et al., 1993).

A little more than half of Boulder Model programme directors state that they require students to be involved in research in addition to the dissertation, but, on the other hand, almost half of the programmes do not make this additional demand (O'Sullivan & Quevillon, 1992). Cherry et al. (2000) recently found differences in the numbers of students training within practitioner-oriented programmes and Boulder Model programmes who had participated in several different activity categories during the previous academic year: the mean percentages of Boulder Model students engaged in the same activity are reported in brackets; 7% (30%) of students training within professional school model programmes had authored or co-authored a journal article, 16% (44%) had been involved in the authorship of a paper for professional presentation, 7% (24%) had been involved in grant supported research, and approximately 26% (35%) had been involved in the delivery of professional services. These data show that fewer students training within the practitioner-oriented framework gain experience in both the research and practice components of clinical training as contrasted with their Boulder Model counterparts. Cherry, et al. (2000), found no differences in terms of the numbers of faculty and trainees associated with Boulder Model programmes and practitioner-oriented programmes who belonged to a professional organisation. A second study by Eyde and Childs (2000), however, found that fewer Boulder Model faculty belonged to a state psychological association than did practitioner-oriented faculty. In addition, very few PsyD faculty are also members of the APA, whereas the vast majority of clinical faculty who hold a PhD degree do belong to the APA (Eyde & Childs, 2000).

The upshot of this brief foray into the empirically informed similarities and differences between practitioner-oriented programmes and Boulder Model programmes is that they do not appear to be as sharply differentiated as Trierweiler and Stricker (1998) suggest. More to the point, Trierweiler and Stricker (1998) cannot convincingly assert that practitioner-oriented programmes reflect a more accurate portrayal of the spirit of the Boulder Conference than Boulder Model programmes.

What many authors appear to be forget, or at least underplay, is that the Boulder Model of training in clinical psychology was fundamentally concerned with laying foundations it believed would result in a scientifically and professionally valuable *field*, as much as it was concerned with providing guidelines for what could be reasonably expected from individual members trained within such a framework. In addition, if attempts to implement the Boulder Model have failed as dismally as many claim, how can one explain the various advances the discipline of clinical psychology has made over the last fifty-one years? Furthermore, it may be recalled that one of the five reasons given at the Boulder Conference for training clinical psychologists within the scientist-practitioner model was that this was likely to create a mental health field that would demonstrate its social value through the anticipated contributions it would make to mental health and health care. Today, clinical psychology is described as the leading mental health research discipline and the recipient of the most funding dollars from the National Institute of Mental Health (Routh, 2000). It is unlikely that this state of affairs would have eventuated if clinical psychology had failed to live up to Boulder conferees' expectations.

The context for this thesis has now been set, and the viability of attempting to evaluate the current implementation status of the Boulder Model has been defended. Having outlined of the Boulder Model and the rationale for its adoption, the next 5 chapters will systematically address the following questions in an effort to clarify the implementation status of several important features of the Boulder Model: (1) Is the Boulder Model delivering the products that it intended to produce? (2) Do clinical practitioners critically consume scientific literature and do clinical scientists consume information from the professional literature? (3) Do clinical practitioners utilise scientific research to inform their professional activities? (4) Beyond the consumption and utilisation of research, do practitioners conduct their professional activities in other ways that are demonstrative of a scientific manner? (5) Is clinical psychology well positioned to adapt to changes in science, technology and society?

CHAPTER 3

The Three Products of the Boulder Model

As a consequence of training within the Boulder Model philosophy, Boulder conferees expected Boulder Model programmes to produce graduates who were capable of entering a career in practice, research, or both (Raimy, 1950). Furthermore, those who persist in promulgating the view that Boulder conferees envisioned the ongoing conduct of "research [to be] the *dominant* function of *all* clinical psychologists" (Peterson, 2000, p. 253, italics added) are exaggerating. Conferees were realistic in their expectations about the amount of time a "fully occupied" (Felix, cited in Raimy, 1950, p. xvii) practitioner would have to devote to conducting basic or applied research. There were other reasons why Boulder conferees believed that all clinical psychologists needed to have experience in the conduct of research during their training.

First and foremost, training institutions, placement sites and internship locations needed to be populated by clinical practitioners who would be capable of providing competent research supervision to clinical psychology trainees doing dissertation work. Practitioners also needed to be well versed in research principles so that they could "give formal and informal instruction in the principles and practices of research" (Felix, cited in Raimy, 1950, p. xviii) to members of other health professions. Of course, clinical practitioners also needed be able to competently consume and evaluate the scientific literature. Furthermore, conferees were well aware that some graduates would undoubtedly establish themselves in private practice, nonetheless, they hoped the majority of graduates would disperse across a number of health-related settings and become part of a mental health care team (Raimy, 1950). Thus, a review of the empirical literature that addresses the issues just mentioned will now be provided and interpreted in the light of a clearer understanding of the Boulder Model's requirements on these matters.

Employment settings

A review of the literature addressing the issue of how clinical psychologists are distributed across different employment settings suggests that the reported percentages of clinicians in private practice have been highly variable across time and across studies, with generally less variability in how clinical psychologists are distributed across university and service orientated

employment settings (e.g., community welfare agencies, hospitals of different kinds, and treatment centres). Some of the observed variability may be due to differences in sampling strategies, or changes in institutional employment practices, or demands. The most recent evidence (Belar, 1998; Cherry, Messenger & Jacoby, 2000) indicates that the number of practitioners in private practice is relatively small.

In an early study, Garfield and Kurtz (1976) found that approximately 23% of their survey respondents (855 APA members of Clinical Psychology, Division 12) were employed in private practice. Approximately 29% were employed in university settings, almost 35% were working in hospitals (general or psychiatric), medical schools or clinics, with 11.5% working in a variety of settings (schools, corporations, government, juvenile offender centres, rehabilitation centres, and state departments of mental health). Just over 1% of the sample had no primary employment affiliation.

By 1978 concerns were raised about the increased numbers of clinical psychologists in private practice and the finding that the majority were located in affluent urban regions (Watson, Johnson, Caddy & Rimm, 1981). Five years later, an analysis of the survey data supplied by 279 psychotherapists affiliated with Division 29 (Psychotherapy), the majority of whom claimed a clinical specialty (72%), revealed that 61% of the total sample were in private practice, 19% were at universities or medical schools, 12% were employed in hospitals, outpatient clinics or mental health centres, and 9% in other settings (Morrow-Bradley & Elliot, 1986).

Australia has also been training its clinical psychologists according to the principles of the Boulder Model (Sheehan, 1994). Studies from this part of the world also show a degree of compatibility with American data, despite certain professional differences between the two countries (e.g., registration requirements, licensing, and/or membership criteria to formal bodies). For example, Byrne (1982) found 22.1% to be employed in university settings, 17.3% in private practice, and the remainder distributed amongst various other domains. Martin (1989) reported that 20% of the 190 clinical psychologists he surveyed were in private practice. More recent data from an Australian perspective revealed that 15.3% of the surveyed sample of clinical practitioners were exclusively employed in private practice and another 16.9% combined private practice with other employment (Simionato, 1991).

From a sample of 898 American psychologists working in the area of child and adolescent psychotherapy, approximately 60% of whom were drawn from the APA Division 12, Kazdin, Siegal and Bass (1990) reported that 47% were in private practice and 10.4% were employed in psychology departments of an designated nature. The remainder of the clinical psychologists in the sample were distributed across a variety of other settings including hospitals (state, psychiatric or children's), mental health centres, and educational organisations. Sampling practitioners serving the same client population as those in the Kazdin et al. (1990) study, Cohen, Sargent and Sechrest (1986) found 17% of their small sample of 30 practitioners (the majority of whom had a clinical psychology degree) were in private practice. The remaining practitioners were employed in inpatient and outpatient settings or combined one, or both, of these activities with private practice.

Belar (1998), citing 1997 research findings of the APA Research Office, reported that clinical graduates from university-based APA approved programmes were distributed thus: 25% in academic settings, 41% in health care delivery settings, 14% in other human services, 13% in business, government or other settings, and only 7% in private practice. Most recently, Cherry et al. (2000) examined the initial employment distribution of novice clinical graduates across 10 different employment settings (community mental health centres, medical centres, academic settings, hospitals, private practice, school environments, university counselling centres, postdoctoral residencies, health maintenance organisations[1], and settings classed as 'other'). Graduates were initially employed in comparable percentages across 7 of the 10 employment settings, with 3% of graduates, or less, employed in university counselling centres, HMOs and schools.

From a more global perspective, in countries outside America (namely, Canada, United Kingdom, and Scandinavian countries), Routh (2000) states that it is rare for clinical psychologists to be engaged in private practice. Most practitioners work within the national health system in these countries (Routh, 2000).

In sum, clinical psychologists trained in accordance with the principles of the Boulder Model have historically been both interested in, and capable of, entering a number of employment settings, including academic settings. This is entirely consistent with the Boulder Conference

[1] Sheridan and Radmacher (1992) depict health management organisations as "prepaid health care plans that provide stated services for a flat fee" (p.16).

expectations. Furthermore, this review indicates that professional clinical psychologists are dispersed across a variety of settings such that several different clinical populations are served by the profession. In addition, although the numbers of practitioners in private practice vary from study to study, and over time, very recent data indicate that they are a small minority of the profession.

Roles and activities of clinical psychologists

Boulder conferees outlined a number of roles and functions that they anticipated could be fulfilled by graduates trained within the Boulder Model. These included (a) taking an active role in educating students in training, other health professionals, and the public, (b) involvement in delivering mental health services and programmes to individuals, groups and social institutions, and (c) contributions to knowledge through research (Raimy, 1950). Thus, if these Boulder Model requirements have been implemented, we would expect to see clinical psychologists in each of the three career paths engaged in some, or all, of these activities to a greater or lesser extent. That is, it is not feasible to imagine *all* graduates would have *equal* interest or acumen in *all* of these activities, and, therefore, divide their time equally across these functions.

Garfield and Kurtz (1976) found that their sample of clinical psychologists working in a variety of settings spent most their time (31.42%) engaged in treatment activities, including groups and individuals. The percentage of work time devoted to research, scholarly writing, and research supervision was 13.52%. Teaching occupied almost 14% of respondents' time followed by administration (13.21%). All other activities (diagnosis/assessment, community consultation, and clinical supervision) each occupied less than 10% of work time (Garfield & Kurtz, 1976). These data pertain to clinical psychologists in general as the investigators did not attempt to differentially address the amount of time academically affiliated and non-academically affiliated groups of respondents spent involved in each activity. In addition, just over half of the sample held more than one occupational position, which included some hours spent in part-time private practice.

Byrne and Reinhart (1990) reported that Australian clinical psychologists also divide their time amongst various activities that are commensurate with the Boulder Model. For instance, participants stated that they spent the greatest amount of time engaged in psychotherapy (25%) followed by administration (12%), teaching (10%), consultation (9%), research (8%), psychometric testing (7%), behaviour modification (6%), clinical neuropsychology (6%),

supervision (6%), group therapy (3%) and 'other' (5%). The remaining 3% of the respondents' time was not accounted for by the authors.

Kazdin, Siegal and Bass (1990) documented the extent to which their sample of professional psychologists providing mental health care services to children and adolescents were involved in different activities. Assessment and therapy occupied 26.5% and 44.6% of respondents' work time, respectively. Approximately 13% of their time was spent engaged in consulting work and 7.5% was devoted to unspecified activities. An average of 7.1% of respondents' work time was accounted for by research. How these professionals spent the remaining 1.2% of the time was not reported by the authors. In a study of practitioners with a non-university affiliation, Haynes, Lemsky and Sexton-Radek (1987) reported that clinicians spent 1.3 hours engaged in research per week.

In a survey of practicing therapists, who were also members of the Association for Advancement of Behaviour Therapy, Norcross and Wogan (1983) found that respondents spent an average of almost 23 hours per week engaged in psychotherapy with individuals or groups, almost 7 hours per week engaged in teaching or supervision and 2.4 hours per week engaged in research.

Martin's (1989) data indicate that the majority of non-academically affiliated clinical psychologists and clinical psychologists working in academic settings both engage in various forms of research-related activities in numbers that are in accordance with the emphasis involved with the different career paths. For example, 53.2% and 83.2% of non-academic and academic respondents, respectively, had presented a data-based research paper at a research gathering at least once, and 52% of the non-academically affiliated participants had presented a review or theoretical paper at a conference/symposium at least once, as had 75.6% of the respondents associated with an academic institution. Almost 86% of the academic participants and 64% of the non-academic respondents had started work on a research manuscript for publication once or more frequently. A sizeable minority of non-academic participants (47.2%) had sent a manuscript off to a research journal for publication at least once and 38.2% met with success at least once with a data-based article, 23% had published a review or theoretical paper in a research journal once or more often, almost 17% had written a book chapter, and 9% had written a book. Sixty-five percent and 72.5% of non-academic and academically affiliated respondents, respectively, had prepared a research paper for use within their work place at least once. The majority of academics had reviewed a research manuscript (60.9%) and research-based book

(61.9%) once or more often, as had almost 22% and 26% of non-academic participants, respectively.

Martin (1989) also analysed 4,241 articles appearing in ten major psychological journals in an effort to assess the proportion of publications that were authored by clinical psychologists without an academic affiliation. The proportion of non-academically affiliated authors (primary or secondary authorship) was approximately 20%. Martin (1989) reported that his finding was consistent with the outcome of a similar study conducted in Britain by Kowaksi in 1983. Furthermore, Lykken (1991) states that only 10% to 40% of journal articles submitted to APA journals are actually published, and only 1% of the published articles can be regarded as making a contribution to knowledge. Hence, of the total number of psychological scientists, only a small percentage are responsible for most of the publications. Lykken's (1991) observations relating to the publication productivity of psychologists in general is also commensurate with the conclusions drawn by the investigators of a more recent study of clinical psychologists (Brems, Johnson & Gallucci ,1996). Furthermore, data from two studies (Kazdin, et al., 1990; Pffeifer, Burd & Wright, 1992) indicate that professional clinical psychologists are more likely than other health professionals (psychiatrists and social workers) to have involved themselves in research activities.

Conway (1988) cites figures from one large survey of clinical practitioners, along with data from his own investigation. He states that a 1982 survey by Norcross and Prochaska indicated that 87% of clinicians published at least one article, with publication means and medians of 14.1 and 5.1, respectively (Conway, 1988). Most interestingly, Conway (1988) distinguished between clinical psychologists whose career paths reflected those outlined by the Boulder Model. He found that all three groups (i.e. clinical scientists, clinical practitioners and those who fully combined both activities) had very respectable publication histories which were wholly commensurate with the different emphasis of each career track. For example, those with slightly more than an average of twenty years experience, and whose careers fully combined both research and practice, had published "a median of 41 journal articles, 6 book chapters, and three books" (Conway, 1988, p.646). Those with approximately 4-5 years of post-graduate experience, who also fully combined both research and practice, had published a "median [of] 13 journal articles, two book chapters, and one book" (Conway, 1988, p.646). Comparable figures were also reported for similarly experienced clinical scientists. Clinical practitioners who had only been practicing for approximately 5 years had a median publication record of 3

journal articles, with 40% of these publications being of an empirical nature. Furthermore, participants who combined both career activities to their fullest extent were largely employed in university settings, in either psychology departments or university clinical settings (Conway, 1988).

A more recent study by Cherry, et al. (2000) reported the mean percentages of both clinical trainees and faculty working within Boulder Model programmes who had engaged in different activity categories in the previous academic year. As the percentages of students involved in each activity have already been reported in the previous chapter, only the percentages of Boulder Model faculty involved in the activities mentioned will be reported here. Forty-three percent of the faculty had been involved in grant-supported research, about 79% had authored a published journal article in the previous year, and approximately 85% had authored or co-authored a professional presentation paper. In terms of involvement in professional service delivery, about 70% of faculty had been occupied with this activity in the previous academic year. It is likely that the percentage of clinical faculty involved in research is actually higher than that reported above as other data indicate that not all research conducted by clinical faculty is necessarily restricted to grant-supported research (Sayette & Mayne, 1990).

Summary and discussion

Empirical data has now been reviewed in relation to both how clinical psychologists are dispersed across employment settings and the roles and activities they perform. A generalist training within the Boulder Model framework appears to be producing clinical psychologists who are capable of entering a variety of different employment settings and executing a number of diverse functions within those settings. Numbers of clinical psychologists entering practice careers, as anticipated at the Boulder Conference, generally exceed numbers entering clinical science careers. In addition, recent figures indicate that the numbers of clinical psychologists working in private practice is consistent with Boulder Model expectations.

Contrary to prevailing views, the studies reviewed in this chapter indicate that many clinical practitioners do engage in research related activities, including publishing, to a realistic extent. The studies also show that clinical psychologists are involved in the various other activities that are consistent with the Boulder Model. In addition, approximately 60 hours has been found to be the average number of hours worked per week by clinical psychologists, regardless of the emphasis involved with the different career paths (Conway,1988). If this finding is considered

representative of practitioners, then it can be estimated that some clinical practitioners spend about 4 hours per hours per week doing research (Kazdin, et al., 1990), others manage approximately 5 hours per week (Byrne & Reinhart, 1990), while others may manage up to about 8 hours per week (Garfield & Kurtz, 1976). Clearly, other practitioners spend less time per week engaged in research (e.g., Haynes, et al., 1987; Norcross & Wogan, 1983). Not only are these differences across studies in the amount of time clinical practitioners devote to research likely to reflect differences at the level of the individual, but they are also likely to reflect differences in employment demands, the size of the employment organisation and the availability of resources across different employment settings. For instance, Martin (1989) found that the majority of practitioners' employers offered either no financial support for research or minimal support. Similarly, the majority of employment agencies in this survey reported that they offered no or minimal leave to practitioners for the pursuit of research. By contrast, practitioners reported that they would like more financial support for research, more research leave, more research-related meetings with fellow practitioners, and more interaction with clinical psychologists working in academic institutions. Practitioners in other studies have voiced similar sentiments (e.g., Haynes, et al., 1987; Pfeiffer, Burd & Wright, 1992).

As others have also pointed out (e.g., Riley & Rush, 2000), many of the barriers to conducting more research that practitioners have identified are likely to be overcome if practitioners adopt a proactive stance and provide employers with an economic rationale for conducting more research as part of the job. In other words, as Riley and Rush (2000) argue, practitioners should attempt to convince their employers that it is in the best interests of the agency to support research efforts by their staff as such efforts hold the most promise for dealing with the particular problems the agency exists to address.

The above remarks pertaining to how clinical practitioners might lobby their employers for more research support notwithstanding, the Boulder Model appears to be fairing well, overall, in terms of its current implementation status with respect to its capacity to produce the kind of products that the model's originators intended. These are clinical psychologists who are differentially able, and interested, in the pursuit of a career in either science, practice, or both, and who have populated the health care system and academic institutions where they collectively fulfil a variety of different functions.

CHAPTER 4

Clinical psychologists and research consumption

As Morrow-Bradley and Elliot (1986) point out research "[c]onsumption, although not identical to utilisation, is a necessary but not sufficient condition for utilisation" (p. 188). In this chapter the focus is on the extent to which clinical practitioners are consumers of scientific information. The issue of research utilisation by practitioners is reviewed and critically discussed in the following chapter.

A modest number of empirical studies have investigated the research consumption practices of clinical psychologists in an attempt to examine whether practitioners demonstrate a commitment to this feature of the Boulder Model. A review of this literature suggests that the average clinical practitioner, contrary to widely held beliefs (e.g., Barlow, et al., 1984; Nathan, 2000), does not (currently, at least) ignore this requirement of the Boulder Model.

Research consumption practices amongst clinical psychologists have been measured in several ways including (a) the number of research papers or books/book chapters read in a given time frame, (b) the frequency with which research journals are consulted, (c) journal subscription practices, and (d) the number of research presentations, conferences, symposia or colloquia that have been attended in a given time period.

Readership practices

In an earlier study by Cohen (1979a), the average number of research articles or books/book chapters read by clinical practitioners was found to be approximately 2 per month. In a more recent study (Simionato, 1991), practitioners were found to read an average of 6 research articles per month, with a reported standard deviation of 7.1. Morrow-Bradley and Elliot (1986) reported that clinical practitioners in their sample read an average of 5 research sources per month, with a reported standard deviation of 8.1. In addition, the number of research related materials read per month by clinical practitioners has been found to range from 0-30 in one study (Simionato, 1991) and from 0-55 in another study (Morrow-Bradley & Elliot, 1986). It has also been noted that just under a quarter of clinicians report reading these materials at a rate of zero per month (Simionato, 1991; Morrow-Bradley & Elliot, 1986). Cohen (1979a) also

reported that clinical academics read about 4 research articles per month. Sechrest and Scott (1993) note that a significant percentage of practitioners report spending between 5 and 20 hours per *week* reading either journal articles or book literature in the clinical area in which they specialise.

Frequency of research journal consultation

Two recent studies examined the question of research consumption practices by clinical practitioners and clinical academics by asking how often (e.g., monthly, weekly, daily or less than monthly) they consult research journals (Martin, 1989; Beutler, Williams, Wakefield & Entwistle, 1995).

Martin (1989) found that 62.7% of clinical practitioners and 85.7% of clinical academics reported that they consulted research journals monthly or more frequently.

Beutler et al. (1995) examined how often clinical practitioners and clinical researchers consulted different categories of psychological journals. Research journals were defined as those that directly reported research findings, with general psychological journals and practice orientated journals defined as non-research journals. Clinicians reported reading non-research journals once in three weeks, with clinical researchers stating that they read from these sources at a higher rate of approximately twice per month. However, when clinical researchers were asked to specify the type of journal they had most often read in the previous month, only a small number of these were actually practice orientated journals.

Journal subscription practices

Martin (1989) found that 47.6% of practitioners and 70.7% of clinical academics reported that they subscribed to one or more research journals. This survey did not attempt to ascertain what other journal types (e.g., general psychology or practice orientated journals) clinical psychologists subscribed to. Wade and Baker (1977) reported that slightly more than 40% of their sample of clinical psychologists reported receiving journals that were devoted to psychometric testing. Tryon (1983) asked clinical psychologists in full-time private practice to identify journals they found of most use to them in practice. A total of 113 publications (including media that were not refereed journals, such as *APA Monitor*) were mentioned as being important sources of information. No single publication was mentioned as important by a majority of the sample. However, in descending order of popularity, the following journals were

listed as important by 10% of the sample or more: *American Psychologist, Journal of Consulting and Clinical Psychology, Psychotherapy: Theory, Research and Practice, Professional Psychology, American Journal of Orthopsychiatry.*

Attendance to research-related gatherings

Morrow-Bradley and Elliot (1986) found that the average attendance at research conferences by clinical practitioners was 1.5 per year. Consistent with these findings, Simionato (1991) also reported that 53% of clinical practitioners had attended at least one research conference in the last year. A substantial percentage (47%), however, reported not attending any research-related functions (conferences, workshops or seminars) in the previous year (Simionato, 1991). However, ranges of 0-5 (Simionato, 1991) and 0-25 (Morrow-Bradley & Elliot, 1986) were also reported indicating considerable variability in the number of gatherings attended by individual respondents in these studies.

Martin (1989) found somewhat higher attendance rates to conferences/symposia. This study reported that 78.4% of non-academic clinical psychologists attended conferences yearly or more often. Approximately 79% reported attending research talks or colloquia annually or more frequently. Again, taking into account the relative emphasis placed by the Boulder Model on each career path, these figures compare favourably with academic clinical psychologists, 92.8% of whom reported attending conferences/symposia yearly or more, with approximately 90% attending research talks or colloquia yearly or more. These studies did not address the issue of whether clinical scientists also attend practice-orientated gatherings.

Critical research consumption

According to the Boulder Model, clinical practitioners were expected to be *critical* consumers of research, not simply passive consumers of research information. There is some evidence to indicate that clinical psychologists do take a critical stance on this matter when consuming written scientific sources of information. For example, Cohen (1979b) and Sargent and Cohen (1983) provided clinical psychologists with a research abstract documenting the methodological procedures employed in evaluating the effectiveness of an unspecified treatment for a disorder. Abstracts varied in terms of their methodological rigor, the diagnosed disorder, and the inclusion or exclusion of information about the clinical relevance of the findings. Participants were asked to rate the study's methodology and to indicate the likelihood of using a particular treatment in the future if a similar case was encountered in their practice. For each rating participants were

also asked to provide a brief rationale for the ratings they had made. In accordance with the tenets of a good experimental design, the most methodologically sound study (that which included a control group, random assignment to groups, an alternative unspecified treatment, adequate sample size, pre-test and post-test measures, and follow-up data) received the highest ratings compared to the two methodologically weaker studies, where the effectiveness of the initial treatment was compared to the alternative treatment and no treatment by reference to the literature only. Participants also adopted a critical stance towards whether they would use a particular treatment for similar cases that they might encounter in the future. An analysis of variance revealed a main effect for anticipated use of the treatment and the more rigorous quality of the methodology employed in the study. However, contrary to the beliefs expressed by some authors (e.g., Barlow, 1981), few respondents in this study expressed concerns about the possible lack of generalisability from group based research studies to clinical cases. In addition, whether the hypothetical case included information about the clinical relevance of the study's findings, appeared to have no effect on the anticipated use of the treatment (Sargent & Cohen, 1983).

A third study, undertaken from a different perspective, also indicates that an appropriately critical stance is taken toward the psychotherapy outcome research literature. Cohen (1980) sent clinical psychologists one of two types of questionnaires aimed at assessing what methodological features of the scientific literature they took into account when evaluating the merits of psychotherapy outcome research. One questionnaire was of a checklist variety, the other permitted respondents to provide an unstructured account of what methodological features of psychotherapy research they considered to be most important. The data generated by the checklist method revealed that more than half of the respondents considered the following specific characteristics of the research literature to be very important guideposts to the scientific merit of the study: an in vivo study (59%), the similarity of research subjects to clients seen in a clinical context (61%), the similarity between the therapist in the research study and the respondent's orientation (61%), the use of a control group (85%), random assignment to groups (70%), the use of appropriate statistics (72%), and the inclusion of follow-up measurements (76%).

While the findings generated from the checklist approach clearly indicate that clinical psychologists demonstrate a critical awareness of methodological features associated with scientifically meritorious psychotherapy outcome research, lower percentages from the narrative

approach suggest that demand characteristics may have contributed to the positive results. For instance, the majority of respondents in the checklist condition mentioned the importance of a control group, whereas this was specifically mentioned by only 44% of the respondents in the narrative condition. Indeed, responses in the narrative condition varied widely with only one feature, a 'good experimental design', being mentioned by more than half (51%) of the participants.

The methodological evaluation of psychotherapy outcome research by clinical psychologists has been found to be prone to bias, depending on the theoretical orientation of the evaluator. For example, Cohen and Suchy (1979) found that clinical psychologists of a psychodynamic orientation were more likely to negatively evaluate the methodology of outcome research that showed a behaviourally orientated intervention to be more effective than a psychodynamically guided treatment. Respondents tended to positively rate the study's methodology if the behavioural intervention was shown to be less effective than a psychodynamically guided treatment. Cohen and Suchy (1979) suggest that this biasing is probably not specific to those of a psychodynamic orientation, but "...is an inherent bias...determined by the congruence between research findings and readers' theoretical orientation" (p.186).

Summary and discussion

The typical clinical practitioner currently appears to critically read something in the vicinity of 5 or 6 scientific sources per month, attends at least one research gathering per year, may subscribe to at least one research journal, and finds several journals of particular use for informing practice. It is also true that some practitioners, as indicated by reported standard deviations and ranges, read well in excess of the average number of research articles per month and attend in excess of the average number of research gatherings. Similarly, there are some practitioners who demonstrate a very poor commitment to the scientist-practitioner model in these respects. However, the data cannot tell us whether the same individuals who have a high attendance rate to research gatherings are also the same individuals who have a high readership rate.

Although there is variation in the extent to which clinical practitioners as a whole consume scientific information presented through a variety of media, the overall results of the empirical studies that have examined the issue of research consumption amongst clinical practitioners indicate that a commitment to this aspect of the Boulder Model is not, currently at least, as dismal as others have argued (e.g., Barlow, et al., 1984). It has also been argued that the

publication rates of clinical practitioners, and other clinical psychologists, are in accord with the spirit of the Boulder Model and are similar to psychologists and scientists more generally.

There is some evidence suggesting that practitioners' judgements concerning the scientific merits of outcome studies may be biased by one's theoretical orientation. This observation perhaps has the potential to be construed by some as indicating that practitioners fall short of the objectivity so valued by science. However, Meehl (1992) identifies a host of sources of error that are common to both scientists and clinicians, including one's theoretical orientation. Therefore, one cannot criticise practitioners' abilities to impartially evaluate the merits of scientific sources of information by holding them to a higher standard than their 'purely' scientific colleagues.

The studies reviewed in this chapter also indicate that clinical practitioners adopt a cautious and critical approach to the literature concerning treatment evaluation research rather than show a blatant disregard for such literature. Whether these cautious and critical tendencies also hold true when consuming information through attendance at conferences and other such gatherings is a moot point. However, as will be discussed in the next chapter concerning the utilisation of research by clinical practitioners, not all information consumed at these gatherings necessarily results in changes to clinical practice.

There appears to be a dearth of empirical studies that have attempted to assess the extent to which clinical scientists consume information from professional sources. One recent study by Beutler, et al. (1995) indicates that clinical scientists do not seek out information from practice sources to a degree that could be called a strong commitment to bringing a clinically informed orientation to their research. However, these results are best treated with caution. Most self-designated clinical scientists are predominantly employed by universities and because many universities running clinical psychology training programmes also operate in-house clinics (Sayette & Mayne, 1990), many clinical scientists will have direct access to clinical research needs. In this way, clinical scientists' reliance on professional publications might be much reduced.

The observation that one's theoretical orientation has been found to bias evaluation of psychotherapy outcome research has already been mentioned (Cohen & Suchy, 1979). In addition to this observation, the preferred theoretical orientation of clinical practitioners has also

been found to be associated with some measures of research consumption. Simionato (1991) found that clinical practitioners of a cognitive-behavioural orientation read more research articles per month than clinicians endorsing eclecticism or a systemic theoretical orientation. Cognitive-behaviourists were also more likely to have attended more research functions in the last year compared to those endorsing either a humanist or systemic approach to clinical practice. In addition, those with more years of clinical experience consume less written information than those with fewer years of experience (Simionato, 1991).

CHAPTER 5

Clinical psychologists and research utilisation

Clinical practitioners have been strongly criticised for not implementing research findings in their practice activities (e.g., Barlow, 1981). A critical review of the available empirical literature is required in order to clarify the degree to which this aspect of the Boulder Model is reflected in the activities of clinical psychologists. Before proceeding to examine practitioners use of the research to inform practice, some comments about what Boulder conferees had to say on this matter are required to provide the appropriate context for interpreting the data that are reviewed in this chapter.

Boulder conferees reasoned that due to their background in science, practitioners would bring a scientific attitude to their clinical work. The particular attitudes Boulder conferees expected all clinical psychologists to possess are as follows: (a) the desire to inquire into what is not personally understood, (b) a critical, analytical disposition toward research findings that promise to confirm or refute clinical intuitions and judgements, (c) an intellectual desire for systematic thought and explanation, and (d) a sense of responsibility regarding the clinical and social implications of research findings (Raimy, 1950). In light of this context, and an acknowledgement of the fact that clinical science has yet to reach the point where it is has been able to provide all the answers to all clinical problems, the extent to which practitioners value and use research to inform practice can be more realistically appraised.

As with research consumption, existing investigations into research utilisation by clinical practitioners have measured utilisation in several ways, including: (a) rankings for information sources relied upon to inform practice (b) rating scales measuring the degree of usefulness of research for practice, (c) changes in service delivery as a result of having consumed information from a particular source, and (d) the degree of influence research exerts on practice. In addition to reviewing the studies that have investigated research utilisation by clinical psychologists using the above approaches, the present author has also made an attempt to approach this issue in one further way. The attempt involves a preliminary investigation into the use of research to inform the development of treatment programmes that are not currently manualised and are aimed at groups of individuals rather than single clients.

Sources of information used to inform practice

One of the most common methods used for indirectly studying the use of research by practitioners has been to ask subjects to rank or rate the importance they place on different sources of information for informing their work activities. Cohen (1979a) asked clinical practitioners working in five different settings to provide a numerical ranking for different information sources that they relied on to inform their practice activities. When the data is examined for practitioners as a whole, as opposed to conducting a separate analysis for each employment setting in the way Cohen (1979a) did, the overall outcome is a somewhat more positive picture than can be discerned from Cohen's analysis [2]. For example, approximately 76% of practitioners ranked research sources (articles, books or presentations) among their *top three* sources of information. Theoretical or practical books were also placed in the top three sources of information by almost 57% of clinical psychologists. Having said this, it was also found that neither clinical practitioners nor clinical scientists exclusively rely on information from research-related sources to help inform their work activities.

Cohen's data (1979a) show that 71% of practitioners and 48% of clinical scientists also ranked discussion with colleagues in their top three most important sources of information for guiding their work activities. The fact that these differences were found to be statistically significant indicates a relative rather than absolute difference between clinical scientists' and clinical practitioners' preferences for this avenue of communication. More to the point, discussions with colleagues was rated by many clinical psychologists in the *top three* sources of information. By contrast, Morrow-Bradley and Elliot (1986) present data that is restricted to practitioners' ratings of their *most* useful sources of information about psychotherapy which shows that only 5% of their sample of clinical practitioners ranked discussions with colleagues as a *the* most useful source of information for informing practice.

In an interview study of 30 practitioners, Cohen, Sargent and Sechrest (1986) asked participants to explicate their reasons for valuing discussions with colleagues. Eighty percent of respondents

[2] Some re-examination of Cohen's (1979a) data involved taking the reported percentages of clinical psychologists in each setting x each information source and computing the number of clinical practitioners endorsing a particular information source and summing these numbers to obtain total numbers so that the percentage x information source for the entire group of practitioners could then be calculated. During the analysis two typographical errors (nonresearch articles x State Hospital clinical psychologists and research presentations x universities) relating to the reported figure of 77% were found such that the reanalysed percentages were based on the more realistic figure of 7.7% which, when referenced against Cohen's (1979a) reported marginal percentages, was found to yield percentages very close to the ones reported.

stated that they gleaned novel ideas or treatment perspectives from these interactions, 30% indicated that such discussions were useful for the purposes of clarifying case formulations and 20% said that they utilised discussions for the purposes of gaining feedback about themselves and their own clinical style. As pointed out by Cohen et al. (1986), the percentages reported sum to more than 100% indicating that more than one reason for valuing discussions with colleagues was given by some participants.

Consistent with the Cohen et al. (1986) findings, the majority of respondents in the Morrow-Bradley and Elliot (1986) study stated that they preferred to discuss problematic cases with colleagues. Whether such practices are to be condemned is debatable. For example, Arnoult and Anderson (1988), have identified a number of procedures clinicians may employ in an effort to reduce biases in causal inference and to facilitate the evaluation of alternative explanations for a client's difficulties. Among these procedures is the recommendation that clinicians "provide a group of clinicians with the available information from one case, and have each of them independently generate as many causes as possible for particular outcomes" (p. 222).

Although Morrow-Bradely and Elliot (1986) found that only 5% of their sample of practitioners ranked discussions with colleagues as the most useful source of information for guiding practice, they also found that a high percentage (48%) rated ongoing experience with clients as the most useful source of information for guiding practice. In light of Cohen's (1979a) data that report which sources of information clinical psychologists rank in their *top three* most important sources, it is worth noting that in a footnote to their data presentation table, Morrow-Bradley and Elliot (1986) state that their reported percentages include information sources that were ranked as number one or *tied* for number one. This study also asked practitioners which source of information about psychotherapy they believed to be the most ideal source of information for informing practice. In contrast to the 48% of respondents who identified ongoing experience with clients as the most relied upon source of information for informing practice, only a small percentage believed that this source of information was the most ideal source for informing practice. On the other hand, no information source was considered by a majority of respondents to be an ideal source for guiding practice. This hints at the possibility that practitioners are aware of the limitations each source of information involves, which is what one might expect if individuals were being critical, analytical and responsible consumers of the information they encounter. This seems to be the case with the research literature, as will be discussed below.

Two studies have asked practitioners to provide a Likert scale rating to indicate what sources of information they find useful for informing practice (Cohen, Sargent & Sechrest, 1986; Simionato, 1991). Both studies have found that discussion with colleagues and experience with clients have been rated relatively more useful sources of information for informing practice than a variety of other sources, such as how-to articles/ books on clinical practice, theoretical books on clinical practice, workshops/conferences/seminars, or empirical research books/articles.

Although the figures reported in these studies clearly demonstrate that participants rate non-empirical sources of information *relatively* more highly than empirical literature for guiding practice, they do not necessarily suggest that practitioners disregard scientific sources of information. It may be reasonable to assume, for example, that 'how-to' sources of information have been developed on the basis of scientific findings. One could be fairly certain that David Barlow, one of the harshest critics of the research utilisation practices of clinical practitioners, (e.g., Barlow, 1981; Barlow, et al., 1984), would be deeply affronted to have one of his 'how-to' publications (e.g., Barlow, 1993) dismissed as a non-scientific or non-empirically grounded reference for guiding practice activities! Participating practitioners in both studies (Cohen, Sargent & Sechrest, 1986; Simionato, 1991) rated 'how-to' sources above the study's Likert scale midpoint suggesting that practitioners respect the value of these sources of information.

Degree of influence of research on practice

Norcross and Prochaska (1983) found that the overwhelming majority of clinical psychologists (94.1%) in their sample reported being repeatedly or frequently influenced by their existing theoretical orientation in terms of their ongoing therapeutic activities. When asked to indicate the degree to which psychotherapy research had influenced the way clinical practitioners conduct their practice activities, Morrow-Bradley and Elliot (1986) found the majority of respondents claimed that psychotherapy research had influenced the way they did practice either 'some' (42.3%), 'quite a bit' (17.2%) or a 'great deal' (10.1%). Similarly, the majority of clinical practitioners (54.2%) in a third study also stated that their clinical activities were 'influenced a lot' or 'very greatly' by empirical research (Kazdin et al., 1990). In a survey sample of 46 mental health professionals, 20 of whom were psychologists, Beutler, Williams and Wakefield (1993) note that 66% of the sample reported being 'generally' influenced by research findings and 70% stated that they had been 'moderately' influenced by one particular research report. However, sizeable percentages of practitioners in two studies (30% and 42%,

respectively) said that their practices had been influenced by research results either not at all or only minimally (Morrow-Bradley & Elliot, 1986; Simionato, 1991).

Research utilisation and changes in service delivery

Cohen et al. (1986) interviewed practitioners about the last time a particular empirical study had bought about a change in their service delivery practices. Some (30%) mentioned that they had implemented certain treatment techniques in their practice based on having read an experimental study but none of the participants could identify the specific experimental study or studies where they had encountered the information that had resulted in such a change.

In a second study (Beutler, et al., 1993), 74% of the respondents stated that they had altered their clinical practice in light of research findings. In a third study, where practitioners read an average of 55 research articles per *year* (i.e., where the reported average number read per month (5) (Morrow-Bradley & Elliot, 1986) is multiplied by eleven working months), 37% of which were rated as useful, 31% of the participants stated that they subsequently changed their therapy practices as a result (Morrow-Bradley & Elliot, 1986). Interestingly, although practitioners in the same study said that they found 57% of conferences or workshops that presented research results to be useful, only 22% of the sample said they had subsequently changed their therapy practices in response to consuming research information through such attendance (Morrow-Bradley & Elliot, 1986). Hence, it is not clear what the ratings and rankings given by practitioners about the usefulness of different sources of information actually amounts to, particularly with respect to whether practice is changed in response to what is considered to be a useful source of information.

As mentioned in Chapter 4, when practitioners are asked whether they would implement the treatment findings from a hypothetical empirical study into their practice, they are typically critically discerning and take into account a number of important factors, such as the quality of the study's methodology, as part of their decision making process (e.g., Sargent & Cohen, 1983). Perhaps these same factors are also taken into account by practitioners when they consume information from sources other than empirical studies. This is an empirical question that does not appear to have been addressed as yet.

Correlates of research utilisation

Morrow-Bradley and Elliot (1986) sought to identify potential correlates of psychotherapy research utilisation. Six measures of research utility were used to reach a standardised average utility measure. Years of experience, gender, personal therapy experience and employment setting were not found to be associated with research utilisation. However, some interesting associations were found between different theoretical orientations and the average utility index.

A cognitive and/or behavioural theoretical orientation was positively correlated with the average utility index ($r = .30$, $p < .001$), a psychodynamic orientation was negatively associated with average utility ($r = -.25$, $p < .001$), and an eclectic orientation was not related to the average utility measure ($r = -.02$) (Morrow-Bradley & Elliot, 1986). This study also found that clinical practitioners who had produced research themselves (either by way of research publications or oral presentations) found research to be of greater use in practice than those who had not produced research themselves, although the relationships were not strong ($r = .14$, $p < .05$ and $r = .12$, $p < .05$, respectively). Somewhat stronger associations were obtained between the measure of average research utility and research articles/books read and attendance at research-related gatherings ($r = .17$, $p < .01$ and $r = .25$, $p < .001$, respectively) (Morrow-Bradley & Elliot, 1986). Similar findings were reported by Simionato (1991) in that practitioners of a humanist orientation, systemic or eclectic orientation were less influenced by the empirical literature than cognitive-behaviourists.

A factor analysis has shown that individual practitioners who rate as relatively more useful those information sources that include empirical research, theoretical materials, and workshops/conferences, tend to report being more influenced by the research they consume than individuals who prefer 'how-to' sources of information and discussions with colleagues, or those who place greater weight on past experience with clients or their own intuition (Simionato, 1991).

The findings concerning the relationship between theoretical orientation and research utilisation are important to note. First, with some exceptions (e.g., Piotrowski & Lubin, 1990), many studies that report on the characteristics of clinical psychologists indicate that both eclecticism and/or psychodynamic/psychoanalytic perspectives, have been consistently well represented orientations within clinical practice over many years (Beutler, Williams & Wakefield, 1993; Byrne, 1982, 1983; Byrne & Reinhart, 1990; Cohen & Suchy, 1979; Garfield, 1994; Garfield &

Kurtz, 1976; Jensen, Bergin & Greaves, 1990; Kazdin, Siegal & Bass, 1990; Morrow-Bradley & Elliot, 1986; Norcross & Prochaska, 1983; Simionato, 1991; Talley, Strupp & Butler, 1994; Tyler & Clark, 1987; Wade & Baker, 1977). The continued preponderance of clinical psychologists who self-identify as adhering to a psychodynamic orientation is interesting given that only 4% of APA-approved clinical psychology training programmes identified themselves as training students within this orientation in the mid 1980s (Piotrowski & Keller, 1984).

The utilisation of practitioners' knowledge by clinical scientists

The available empirical literature that speaks to the utilisation of research by clinical psychologists has primarily focused on practitioners and their utilisation of research to inform practice. However, the Boulder Model also hoped that clinical scientists would remain abreast of clinical realities in order that they might conduct the kind of research that addressed pressing clinical needs.

Interestingly, this feature of the Boulder Model has not been empirically explored until very recently (Beutler, et al., 1995). Beutler et al. (1995) asked both clinicians and clinical researchers to indicate on a rating scale the extent to which the respective published literature (clinical or scientific) was useful in terms of (a) leading to the application of findings to their respective work activities, (b) providing a conceptual framework and (c) increasing awareness of issues. The investigators also listed seven particular topic areas (therapeutic alliance, interventions, treatment comparisons, therapist-client processes and outcomes, case studies, theoretical orientations and treatment-patient interactions) and invited participants to rate how useful they thought the literature was for guiding their respective work activities in these areas. Both groups indicated that they found cross-reading equally useful for increasing their awareness of important issues. However, practitioners valued the research literature more than clinical scientists valued the importance of clinical literature, particularly in regard to case formulation, conceptual frameworks and altering practice activities. Neither practitioners nor clinical scientists differed with respect to the value they placed on cross-reading in the area of theoretical orientation, but on all other topic areas clinicians were found to value cross-reading in these areas more than clinical scientists. However, it has already been mentioned in chapter Chapter 4, that clinical scientists may have a reduced need for reading the professional literature to inform their research and rely more on direct contact with the in-house clinics many clinical programmes now have on campus.

Perceived limits of psychotherapy research literature

Although the studies reviewed thus far tend to show that most practitioners value and use the research literature to some extent, there remains the important question why aren't more clinical practitioners making greater use of the scientific literature, relative to other sources of information on psychotherapy, to guide clinical work.

Practitioners themselves who have been asked about this issue have reported a number of factors that they believe are associated with psychotherapy research literature which limit the usefulness of this research for guiding practice. Many practitioners believe that the therapeutic alliance is a particularly important mechanism of therapeutic change (e.g., Kazdin, et al., 1990), yet they consider that clinical research has focused too heavily on therapeutic techniques at the expense of this important variable (e.g., Morrow-Bradley & Elliot, 1986). There may be some substance to this claim as far as a relative imbalance of research is concerned. However, over a period of 35 years (1950-1985), on average about 30 findings per year relating to the therapeutic alliance have been published, although some of these only in German (Orlinsky, 1994). So, there has been a small but steady research output concerning the therapeutic alliance. If we take the lowest average number of research articles read per month by practitioners as 2 (Cohen, 1979a), and multiply this by eleven working months, then in any one year between 1950 and 1985 a curious practitioner could have read approximately 70% of these findings which would probably have helped empirically confirm (or disconfirm) his/her clinical impressions.

Other major criticisms made by practitioners about psychotherapy research include the lack of attention given to clinical complexities, the dissimilarity of researched cases to those seen in the clinic, the inappropriateness of traditional scientific methodologies/traditional statistics, inadequate descriptions of treatments, and the need for positive findings to be replicated (Cohen et al., 1986; Kazdin, et al., 1990; Morrow-Bradley & Elliot, 1986). In response to these criticisms, and the concerns of some researchers (e.g., Barlow, 1981), Francis and Aronson (1990) attempted to see whether practitioners' criticisms of the literature were well founded.

Francis and Aronson (1990) analysed 114 published outcome studies that appeared in 22 journals between 1985-1987, including those journals that Tryon (1983) had identified as being the top 10 most useful journals read by practitioners. They found that some criticisms of the outcome literature were well founded while others were not. For example, only 5% of all the articles Francis and Aronson (1990) analysed were replication studies, important information

about the characteristics of research cases was frequently absent (e.g., race, education, age range of studied cases, economic status), and information concerning the duration of the disorder, diagnostic criteria, previous treatments tried and their outcomes, and case descriptions, were all underreported. However, other criticisms of the literature were not well supported. The outcome literature Francis and Aronson (1990) examined adequately covered information concerning treatment descriptions and assessment of change, disorder symptoms and severity of the disorder.

Although Francis and Aronson (1990) did not address practitioners' criticisms regarding the use of traditional research methods and statistics, other investigators have examined this issue. Dar, Serlin and Omer, (1994) reviewed 163 psychotherapy research studies involving statistical analyses that appeared in the *Journal of Consulting and Clinical Psychology* between 1967 and 1988. These investigators particularly focused their inquiry on three aspects of statistical practices amongst psychotherapy researchers: how null hypothesis testing and *p* values were used; whether researchers gave consideration to effect size; whether Type I error rates were controlled for. Dar et al. (1994) found the following: (1) analysis of variance (ANOVA) was clearly the most preferred data analysis technique, (2) throughout the entire three decades of psychotherapy research "...null hypothesis tests have been misinterpreted and misapplied" (p.79) to the extent that the reliability of the results from the majority of these studies was overstated, (3) effect size estimates were completely absent in relation to the use of ANOVA, no study employed confidence intervals, but attention to effect size measures had increased over the years. The fact that many of the criticisms made by practitioners concerning the psychotherapy literature have been supported by Aronson and Francis (1990) and Dar, et. al., (1994) provides further evidence that practitioners (a) read the research literature, (b) critically appraise the literature, and (c) have a reasonably accurate perception of the literature. Omer and Dar (1992) also note that since the 1960s theory in psychotherapy research has played an increasingly diminishing role, as has the search for causal mechanisms.

One important question arising from the preceding discussion is whether the observed deficiencies found in the outcome literature (Francis & Aronson, 1990; Dar, et a., 1994) can be considered to amount to a strong justification by practitioners for not utilising the psychotherapy research to inform practice to a greater extent than they currently report. For instance, although the number of published psychotherapy replication studies is low, a proactive and innovative individual might well be expected to attempt to replicate the research findings in his/her own

practice setting to the degree that this was feasible (e.g., within organisational constraints of the employment setting) (Cohen, 1977). This suggestion is explored more fully in the summary and discussion section toward the end of this chapter.

Research utilisation and the development of treatment programmes

The empirical studies that have investigated the utilisation of research by clinical practitioners have been reviewed in the foregoing paragraphs. However, the vast majority of participants in these studies have indicated that they spend the majority of their time delivering psychological services to individuals. To this author's knowledge, there are no published studies that have attempted to investigate the question of research utilisation by clinical psychologists involved in the development of treatment programmes aimed at groups of individuals. Hence, it would appear that an examination of research use by treatment programme developers is warranted in order to provide a more balanced perspective.

Although a thoroughgoing study of the extent to which clinical psychologists may make use of the research literature to inform the development of psychologically based treatment programmes is beyond the scope of this thesis, the following strategy was employed both to illustrate how such a study might be undertaken and also to gain at least a partial insight into whether clinical psychologists involved in the development of treatment programmes utilise the available research literature to inform such developments.

Using the PsycInfo data base, a search title reading (treatment program* and descri*) or (thera* program* and descri*) was used to access publications concerning treatment programmes. For manageability, the search was restricted to the year 1998 and publications appearing in English. This procedure yielded a total of 91 hits. On the basis of the abstracts alone these publications were briefly examined to determine their potential relevance for the present purposes. The determination of whether the publication was relevant or not was made according to whether (a) the abstract indicated that the publication contained a description of the development of a psychologically based treatment programme (e.g., it was not restricted to pharmacological treatment) for a clinically relevant problem, and (b) it was not a treatment manual. Twenty publications were identified for further appraisal. As the present question concerns clinical psychologists and their utilisation of research literature to inform practice, an attempt was made to identify and exclude those publications that clearly did not have the potential to involve

clinical psychologists - for example, if the author(s) were MDs, these publications were excluded.

A total of 13 publications comprised the final sample to be analysed, and from these the following treatment programmes were identified: (a) five treatment programmes aimed at children/adolescents and/or their families (Fristad, Garazzi & Soldano, 1998; Foote, Schuhmann, Jones & Eyberg, 1998; Foxx, 1998; Miller, 1998; Twemlow & Sacco, 1998), (b) two treatment programmes exclusively for women (Spencer, 1998; Talbot, Houghtalen, Cyrulik, Betz, Barkun, Duberstein & Wynne, 1998), (c) three treatment programmes concerned with drug and alcohol issues (Longshore, Grills, Annon & Grady, 1998; Sloan & Rowe, 1998; Levine & Nebelkopf, 1998), (d) one programme for the treatment of dental phobia (Coldwell, Getz, Milgrom, Prall, Spadofora & Ramsay, 1998), (e) one programme for the treatment of mental illness amongst prison inmates (Lovell & Jemelka, 1998), and (f) one programme for the treatment of Australian Aboriginal sexual offenders (Cull & Wehner, 1998).

A total of 399 references were listed for all treatment programmes, with an average of approximately 31 references per publication (range = 9-92). Treatment programme developers tended to draw more heavily on the relatively recent research literature as opposed to older research, as indicated by the fact that the majority (approximately 64%) of the references used were ten years old or less. Several publications also included a section devoted to preliminary efficacy findings of the treatment programmes they described.

In an attempt to clarify more precisely what use was being made of the referenced literature by programme developers, citations appearing throughout the text of each programme publications were first identified. The function of each citation was then ascertained by examining the content of the surrounding text. All citations were then grouped according to one of five identified functions that naturally emerged from the publications. This procedure revealed that (a) approximately 41% of the citations referred to the findings of empirical studies that were used to inform the treatment programme (e.g., current status of the evidence for a relationship between two relevant variables, findings concerning the application or effectiveness of the treatment programme or model for a different population), (b) approximately 33% of the citations functioned to demonstrate the need for the treatment programme (e.g., prevalence rates, incidence rates, costs to society if the problems are left untreated, other general background or peripheral information), (c) approximately 24% of the citations functioned to identify theoretical

perspectives, models and/or principles used to inform the treatment programme, (d) almost 4% of citations referred to a psychometric instrument or statistical matter relevant to the treatment programme, and (e) under 1% of citations did not appear to serve any identifiable function. Percentages sum to more than 100% due to rounding.

If one considers empirical findings associated with the first function, the theoretical models (which typically may already have received some empirical validation in the course of their development) and psychometrics as equally scientific in nature, then together these sources comprised a healthy 69% of the literature that programme developers utilised to inform the development of their respective treatment approaches. Moreover, the above exercise tends to suggest that clinical psychologists who are involved in the development of treatment programmes show a particularly healthy respect for empirical findings and utilise an appropriate amount and array of research literature to inform the development of such efforts.

Summary and discussion

In contrast to widely held views, the evidence reviewed in this section, on the whole, suggests that a healthy majority of clinical practitioners providing services to individuals seek to utilise and value a variety of scientifically respectable sources of information to inform their practice. In addition, clinical psychologists who are involved in the development of treatment programmes aimed at groups of clients also appear to demonstrate a strong commitment to utilising scientific findings to inform these developments. Also, more practitioners seem to make practice changes in response to written sources of scientific information relative to the numbers who report altering their practice as a result of attending conferences. This is encouraging, given the lack of peer review associated with materials presented at conferences.

However, the degree of influence that science exerts on practice is not uniform. In one study (Kazdin, et al., 1990), the majority of practitioners reported being influenced by scientific sources of information 'considerably' or 'a great deal', while similar responses ('quite a bit' or 'a great deal') were endorsed by a markedly lower percentage in a second study (Morrow-Bradley & Elliot, 1986), with a significant minority stating that scientific information influenced their practice to 'some' degree. These findings may well be consistent with relative differences in the availability of scientific knowledge across different mental health problem areas. For example, little is known about what psychosocial treatments are effective for the majority of personality disorders (Crits-Christoph, 1998). In contrast, a great deal more is known about

effective therapies for major depression (Craighead, Craighead & Ilardi, 1998) and many of the anxiety disorders (Barlow, Esler & Vitali, 1998).

Practitioners also appear to be fairly accurate in their critical appraisal of the psychotherapy research literature. This is noteworthy in several respects. First, it provides further evidence indicating that practitioners do in fact critically read and understand the scientific literature. Second, given the limitations of the research literature, it might be disconcerting to find the vast majority of clinicians reporting that their practice was influenced by the literature to a vastly greater degree than presently seems to be the case. In a related vein, it is not always easy to discount the issue of socially desirable responses influencing the results of survey research, yet it appears that the responses provided by clinicians to questions pertaining to research utilisation honestly reflect their actual practices.

Unfortunately, it is not especially clear what clinicians' ratings, rankings and reported degrees of research usefulness, influence or effectiveness amounts to, as indicated by the observation that only modest percentages of practitioners report changing their practice activities in response to scientific information. In addition, Kazdin et al. (1990) note that the relationship between practitioners' views regarding the usefulness and effectiveness of different approaches to therapy is not synonymous. For example, most clinical psychologists believed that an eclectic approach to treatment was useful and 50% also believed that a psychodynamic approach to treatment was effective (Kazdin, 1990). Given that Morrow-Bradley & Elliot (1986) found no relationship between an eclectic theoretical orientation and measures of research usefulness, and a negative association between a psychodynamic orientation and ratings of research utility for informing practice, it is unfortunate that Kazdin et al. (1990) did not also attempt to ascertain how practitioners knew that an eclectic approach to therapy was useful, or how they determined that these two approaches to therapy were effective. Without information of this kind it is impossible to ascertain whether these beliefs are impressions, or whether they are based on stronger support that may have resulted from the implementation of a scientifically meritorious approach to clinical practice (e.g., Kazdin, 1981; Hayes, 1981; Davison & Lazarus, 1994). This highlights the difficulties associated with attempts to measure the concept of research utilisation.

As some authors (e.g., Cohen, 1977; Cohen et al., 1986) have pointed out the notion of research utilisation is subject to a variety of different meanings. These definitions include, for example, (a) an awareness of the research findings, (b) taking into account research findings when making

decisions, (c) conceptual research utilisation, or the process of innovation diffusion (Cohen, 1977), and (d) changing the way one practices in response to research findings, or instrumental research utilisation. The first of these definitions will not be discussed here as it has previously been covered in Chapter 4 which dealt with the research consumption practices of clinical psychologists.

Taking research findings into account in decision making

This aspect of research utilisation can be understood as involving an awareness of research findings, thoughtful consideration of the data in the context of other relevant factors, but an ultimate decision by the clinician not to implement the research findings because of the weightiness of other considerations (Cohen et al., 1986). Cohen et al. (1986) have persuasively argued that this interpretation is the most realistic way to approach the question of research utilisation by practitioners. A number of points are raised by these authors in support this contention.

First, in some clinical domains our knowledge of psychopathology may be relatively impoverished (e.g., personality disorders), in other domains there may be little research available to guide the clinician (e.g., effective treatment for many of the personality disorders), and, in other domains research findings may be plentiful, yet inconsistent. These states of affairs are probably considerably exacerbated by the questionable quality of the psychotherapy research itself (e.g., Dar, et al., 1994; Francis & Aronson, 1990).

Second, implementing a particular research finding may not always be appropriate when other relevant information is taken into account as part of the decision making process (e.g., in situations where the tested cases are very dissimilar to those cases seen in the clinic). Third, Cohen (1977) reminds us that practical problems, such as features of the clinician's employment setting/organisation, may make applying some research findings difficult (e.g., mental health programme policies, financial constraints, or legal considerations).

When clinicians are asked to estimate the effect of different factors on their decisions to use a novel treatment that they may read about in the literature, research suggests (e.g., Sargent & Cohen, 1983; Cohen, et al., 1986) that many practitioners' decisions are influenced to a high degree by the following considerations: (a) how well the article details the treatment, its underlying theory and the procedures for its application, (b) whether training in the use of the

new treatment is accessible through workshops and supervised learning, (c) whether a need exists for a new treatment, (d) whether methodologically sound and positive results of a novel treatment have been replicated, (e) the extent to which the research subjects are similar to clients seen by the clinician, and (f) whether a novel treatment is compatible with clinicians' current approach to therapy. In addition to these six factors, it will also be recalled from Chapter 4 (Clinical psychologists and research consumption) that practitioners take a variety of methodological features into consideration when appraising the clinical value of empirical findings and their anticipated use of novel treatments.

There are even stronger reasons to accept the suggestion that research consideration is the most realistic way to examine research utilisation in practice settings. Seligman (1998) points to some sobering and important differences between studies that are designed to demonstrate a treatment's efficacy as compared with studies that are designed to evaluate a treatment's effectiveness. Efficacy studies examine the "outcome of treatment when it is distilled into a highly controlled design [while effectiveness studies look] at the outcome of treatment as it is actually carried out in the field" (p. 569). These approaches may lead to outcomes that are at variance with each other due to important differences in the features associated with each approach. Furthermore, effectiveness studies may be more ecologically valid than efficacy studies (Seligman, 1998). The differences between effectiveness studies and efficacy studies are summarised as follows:

1. Treatment conducted in the field terminates when the client feels better (or finishes). Efficacy studies terminate at the end of a fixed period of time, irrespective of the client's progress.

2. Therapy in the field is eclectic and responsive to the client's progress or lack of progress. Efficacy studies deliver one therapy modality, use fewer techniques, and do not self-correct in response to the client's progress.

3. Clients seeing a therapist in the field choose their therapist. Clients participating in efficacy studies do not make these choices and may even be demographically dissimilar to those seeking treatment in field settings.

4. In the field, clients typically present with a multitude of difficulties (i.e., common co-morbidities as well as other problems). Clients participating in efficacy studies are normally a highly selected group.

5. Therapy conducted in the field is typically aimed at relieving the client' symptoms as well as improving the global functioning of the individual. By contrast, efficacy studies usually aim at ensuring the individual does not continue to meet diagnostic criteria.

Thus, the most reasonable interpretation of practitioners' attitudes toward the research literature and the extent to which most practitioners use the research to inform practice, seems realistic and appropriately rational. This claim is supported by taking into account the differences between effectiveness and efficacy studies in addition to the other points raised immediately preceding their explication.

Conceptual use of research

The conceptual utilisation of research, according to Cohen et al. (1986), "...entails the gradual, indirect, and diffuse effects of research studies on decision makers' awareness of problems, conceptualisation of issues, consideration of options, and the like" (p.199). An instance of conceptual research utilisation would be the clinician who increasingly uses explicit thought monitoring procedures with clients subsequent to his/her exposure to information concerning cognitive restructuring and cognitive-behavioural therapy. Cohen et al. (1986) argue that this form of research utilisation is likely to be more difficult to measure, yet contrasted with more direct use of research findings (discussed in the next section), is likely to be vastly more common amongst practitioners.

The available evidence concerning research utilisation amongst practitioners does not easily distinguish between conceptual utilisation of research and instrumental use of research. Cohen et al. (1986) attempted to explicitly assess the conceptual utilisation of research by practitioners. In this study the question posed to practitioners was: "In what way, if at all, has the general research literature on clinical child practice affected your own clinical child work?" (Cohen, et al., 1986, p.201). Thirty-seven percent of the 30 study participants stated that their practice had not been affected by the general research literature, only four respondents said that "research provided an additional perspective on clinical work", and just four others reported that the research literature "was useful with a specific clinical problem" (Cohen, et al., 1986, p. 202).

However, these results are inconsistent with the much larger study conducted by Kazdin et al. (1990). In both studies (Cohen, et al., 1986; Kazdin et al., 1990) the participants were working in the area of child mental health, so differences cannot be attributed to relative differences in the availability of relevant scientific information.

The instrumental use of research findings

This definition of research utilisation is the strongest form of research use, involving all other aspects discussed above in addition to conducting one's therapy activities in ways that are entirely consistent with the research data (Cohen, et al., 1986). However, in light of the points covered previously concerning the definition of research utilisation as pertaining to the consideration of research findings in clinical decision making, the instrumental use of research in clinical practice is realistically likely to be *relatively* lower than other forms of research utilisation. Indeed, the available evidence suggests that this is an accurate reflection of the status quo. Whether it is realistic to imagine that the status quo will, or should, change is a complex issue as highlighted in the previous discussion. Until the ecological validity gap between efficacy and effectiveness studies of therapy is reduced (Seligman, 1998) agreement is unlikely to be easily reached. This is despite gains made over the last 7 years in the dissemination of empirically supported treatments (efficacy studies) and accompanying practice guidelines (Nathan, 2000; Nathan & Gorman, 1998).

The main point to note from the above discussion, however, is that determining whether the majority of clinicians are making appropriately strong use of empirical research to inform and/or change their practice is considerably more complex than can be ascertained through survey methods that pose relatively superficial questions. To make such a determination, we would also want to know how clinical psychologists' utilisation of science to inform practice compares to that of other professional groups who do not receive training in both science and practice. Appropriate comparative studies would provide some further indication of whether the Boulder Model's dual training regime is creating professionals who display a relatively greater respect for the guidance science offers practice.

CHAPTER 6

Do clinical practitioners conduct their professional activities in a scientific manner?

Stricker (2000) recently stated that the distinguishing characteristics of a good scientist are skepticism, curiosity, inquiry about practice and "the application of available scientific knowledge" (p. 254). Few people would disagree with these comments. Moreover, the literature that has been reviewed so far in this thesis indicates that practitioners who have most probably trained within the philosophy of the Boulder Model generally demonstrate these features. Practitioners' curiosity is reflected in their consumption of materials from a variety of media sources, including scientific sources. The overall relevance of clinicians' perceptions of the scientific literature reflects a critical and appropriately skeptical disposition, as does the observation that they do not appear to slavishly alter their practice activities subsequent to attending conferences. In addition, it was argued in the previous chapter that practitioners realistically apply scientific knowledge in their professional work.

Beyond these indications of scientific behaviour amongst clinical psychologists, a number of other plausible indicators of scientific behaviour can also be examined. These include (1) clinical reasoning/judgement practices, (2) the psychometric devices used in clinical practice, (3) the use of diagnostic criteria, and (4) approaches to psychotherapy. In this chapter each of these will be dealt with in turn to further illuminate the degree to which the behaviour of clinicians reflects the spirit of the Boulder Model.

Clinical reasoning and scientific practice

Boulder conferees explicitly recommended that research be focused on "[t]he clinical psychologist himself as a participant observer and professional practitioner" (Raimy, 1950, p.27) so that the scientific status of professional practice might be improved. Clinical psychology has indeed made good on this recommendation. A large body of research has been published on this subject (Garb, 1998), although the ecological validity associated with the bulk of these studies is tenuous (Garb, 1998). Overall though, what this body of research has found is that both experienced and less experienced clinicians are disappointingly fallible cognisers (Garb, 1998). It is also the case that such fallibility is not specific to clinical practitioners.

Numerous publications have appeared that have identified various biases and heuristics that can lead to errors which undermine the reliability and accuracy of human cognising in clinical reasoning (e.g., Dawes, Faust & Meehl, 1989; Garb, 1998; Turk & Salovey, 1988; Spengler, Strohmer, Dixon, and Shivy, 1995), in everyday reasoning (e.g., Myers, 1993), and reasoning in science (e.g., Meehl, 1992). In response to the findings from this body of research, a host of recommendations have been made about how clinical inquiry can be strengthened in a scientifically respectable manner, and biases and errors minimised or corrected. A few examples include: (1) strategies for strengthening the validity of case studies (e.g., Kazdin, 1981), (2) the application of single-case experimental designs in practice settings (e.g., Hayes, 1981), (3) the selection of dependent measures, data collection methods and evaluation procedures (e.g., Nelson, 1981; Nelson-Gray, 1994), (4) the application of abductive method in clinical contexts (e.g., Ward, Vertue & Haig, 1999), and (5) the use of objective psychometric devices (Garb, 1998), (6) raising awareness of social, racial and gender biases (Garb, 1998), (7) attending to clients' strengths as well as weaknesses (Garb, 1998), (8) strengthening the interview process through comprehensiveness and a systematic approach (Garb, 1998), (9) adherence to publicised scientific standards for clinical practice, and the use of decision aids (e.g., attention to base rates, test norms and diagnostic criteria) (e.g., Garb, 1998).

Having noted Boulder conferees' recommendation to study the practitioner has been adopted, the next step in the evaluation process is to see whether subsequent recommendations for improving clinical reasoning and judgement have been followed by practitioners in the field. Thus, another means by which to examine the question of whether clinical practitioners conduct their professional activities in a scientific manner is by an appeal to the empirical literature that has attempted to address this issue in practice settings.

Rock (1994), presented survey results obtained from 106 clinicians, the majority of whom identified themselves as clinical psychologists. Participants were asked a number of questions relating to clinical judgement. Specifically, Rock (1994) attempted to find out their opinions about this kind of research, the extent to which respondents viewed clinical judgement research tasks as adequately exemplifying those encountered in actual practice, and their knowledge base regarding eight major publications in the area. The core findings from this study demonstrated that clinicians (1) think such research is important, (2) doubt the ecological validity of the tasks used in clinical judgement research, (3) believe that their own clinical judgements are reliable and valid, and (4) were poorly acquainted with 8 major publications in the area. The second of

these findings is compatible with some researchers' criticisms of many clinical judgement studies (e.g., Rock & Bransford, 1992). The third finding seems to reflect what much of the research has found on clinical judgement, namely that judges tend be overconfident in the correctness of their judgements (Garb, 1998). It is the last finding, clinicians' apparent lack of acquaintance with the literature, that has the potential to raise concerns. However, Rock's (1994) findings should be treated with caution for reasons discussed next.

In Rock's (1994) study, clinicians' knowledge of the judgement literature was assessed by reference to only 8 publications, 7 of which were between 22 and 40 years old. Admittedly, the references were deemed to be major publications, but for better or worse, greater emphasis is typically placed on more up to date publications. Hence, more revealing results might be obtained using a different approach. For example, clinicians' knowledge of the various heuristics and biases that have been found to be sources of error in decision-making could be assessed via survey methods, along with an account of what strategies clinicians use to counter their effects. It would be interesting to know, for example, if discussions with colleagues and ongoing experience with clients are two major ways in which practitioners attempt to minimise inaccuracies in their clinical judgements. There is some limited evidence to suggest that this may be the case. It will be recalled that in one small interview study practitioners reported finding discussions with colleagues particularly valuable for gleaning novel ideas and treatment perspectives, assisting with case formulations and as a source of feedback about their clinical style (Cohen, et al., 1986). It is noteworthy that the therapist's style has been found to be a good predictor of therapeutic outcome (Orlinsky, 1994). Furthermore, making use of one's clinical colleagues in determining and evaluating causal relations, and consideration of alternative explanations, treatment plans and diagnoses comprise some of the recommended strategies for improving practitioners' information processing abilities (Garb, 1998), and for reducing clinical reasoning errors (Arnoult & Anderson, 1988).

Although difficult to conduct, naturalistic studies, may yield more revealing information about how practitioners working within a team environment actually conduct the various phases involved in clinical practice. Moreover, one needs a clear list of criteria that define the behaviour of a scientist as a framework from which to evaluate clinical practice in action. Stricker (2000) has mentioned several characteristics associated with what it means to be a scientist: curiosity, inquiry, the application of scientific knowledge, and skepticism. To this list one might add other features of science in action, such as data collection procedures,

phenomena detection, hypothesis generation, theory development and evaluation, and identifying change during and following the implementation of an intervention. If comparative research of this nature was conducted using different groups of professionals, perhaps important differences would be revealed that could help identify scientist-practitioners from technician-practitioners, or just plain well-meaning therapists.

Psychometric devices used in clinical practice

In light of recommendations made at the Boulder Conference (Raimy, 1950), and by others in response to the findings from clinical judgement research (e.g., Garb, 1998), one can examine the utilisation of psychometric devices by clinical practitioners as a further means of evaluating scientific behaviour in clinical practice. If scientific practice makes a difference to clinical practice, one would expect to see high usage of demonstrably sound psychometric instruments and low use of those devices that have been shown to possess poor psychometric properties.

An early study by Sundberg (1961) documented the psychometric devices clinical psychologists working in 5 different service settings most favoured. He provided a list of over 60 psychological tests that he found to be utilised in practice by 10% or more of his respondents either occasionally, frequently, or most of the time. Only those tests most frequently used by the majority of respondents in this study will be listed here.

The most popular test used by practitioners across all employment settings was the Rorschach (Sundberg, 1961). In descending order of popularity, the Rorschach was followed by Draw-A-Person (DAP), the Thematic Apperception Test (TAT), the Bender-Gestalt, the Stanford-Binet, the Wechsler Adult Intelligence Scale (WAIS), the Minnesota Multiphasic Personality Inventory (MMPI), the Wechsler-Bellevue, Draw-A-Man, and the Wechsler Intelligence Scale for Children (WISC) (Sundberg, 1961). With some exceptions (e.g., Sullivan & Bowden, 1997), the majority of subsequent publications concerning test use in clinical practice indicate that most of these tests have remained consistently well used devices by many clinical practitioners (Brown & McGuire, 1976; Butler, Retzlaff & Vanderploeg, 1991; Wood, Lilienfeld, Garb & Nezworski, 2000). Given the enduring popularity of many of these tests in clinical practice, they will be briefly examined in an effort to determine whether their clinical use can be said to be psychometrically justified.

The ten tests identified by Sundberg (1961) as the most popular tests used in clinical practice can be classified as either projective tests or objective tests. A broad definition of projective tests has been given by Kline (1993), who states that "A simplified definition of a projective test...is a stimulus, to which the subjects have to respond, so designed that it encourages subjects to project onto it their own feelings, desires and emotions...the essence...is ambiguity...[which purportedly] causes subjects to project" (p.243). However, others state that "...evidence clearly indicates that these tests do not depend on or require a process of "projection"...the information obtained from these tasks reflects the patient's perceptions, classifications, and cognitive-emotional templates or internal representations, rather than projections per se" (Kubiszyn, Meyer, Finn, Eyde, Kay, Moreland, Dies & Eisman, 2000, p.120). The following four tests to be discussed are projective devices.

The Rorschach: The Rorschach test was developed in 1921 by Herman Rorschach as an exercise in test construction. It was not an attempt to develop a theory of personality (Murphy & Davidshofer, 1994; Wood, et al., 2000). The Rorschach was specifically mentioned by Boulder conferees as one of the projective devices in need of further research (Raimy, 1950). A strong research commitment has indeed been apparent since the time of the Boulder conference. Just over a decade ago there were close to 5,000 published studies concerning the Rorschach (Parker, et al. 1988, reprinted in Kazdin, 1992). However, the Rorschach continues to be enormously controversial.

The scoring of the Rorschach is notoriously complicated with several objective scoring systems currently available to the test user (Kline, 1993; Murphy & Davidshofer, 1994). Although Murphy and Davidshofer (1994) and Wood et al. (2000) claim that the Rorschach's utility as an aid to clinical decision making has yet to be evidenced, others adopt a more circumspect position. For example, Kline (1993) does not endorse the Rorschach for general clinical use on the basis of its psychometric properties, but he nonetheless maintains that this instrument is uniquely able to capture aspects of an individual's personality in the hands of a *gifted* clinician. What being 'gifted' amounts to is highly questionable. It has been noted that expert and non-expert clinicians are similarly inaccurate in their clinical judgements when relying on the Rorschach for meaningful information about clients (Garb, 1998).

Following a literature review of the Rorschach's performance as a diagnostic aid for several major psychiatric disorders, Wood et al. (2000) concluded that, overall, this device is more

likely to detract from diagnostic accuracy rather than facilitate an accurate clinical formulation. Garb (1998) has drawn a similar conclusion. Still others have drawn different conclusions. In a recent review of empirically supported assessment devices, Kubiszyn, et al. (2000), reported that the Rorschach outperformed other measures for predicting psychotherapy outcomes, response to antidepressant therapy, length of hospitalisation, and cancer occurrence. The Rorschach was also said to be able to detect and differentiate between major psychiatric conditions, personality disorders, and other clinically relevant conditions not listed in the DSM's classification system (Kubiszyn, et al., 2000). It was also reported that this device could differentiate at pre-treatment testing between symptoms that are more likely to quickly remit in treatment and those that would take longer to resolve (Kubiszyn, et al., 2000). These reviewers also reported that the Rorschach was able to predict the occurrence of significant interpersonal life events in the short-term (3 months). This is truly a remarkable list of achievements for an instrument that is so poorly understood. So remarkable in fact that they should be treated with the utmost caution.

On the other hand, Kubiszyn, et al. (2000) point to four meta-analytic reviews of the Rorschach that have resulted in findings that suggest the Rorschach is valid for descriptive purposes. One of the most recent meta-analytic review of this instrument was conducted by Parker, Hanson and Hunsley (1988, reprinted in Kazdin, 1992). These investigators selected studies published between 1970 and 1981 ($N = 411$) that had used the Rorschach, MMPI and the Wechsler Scale of Intelligence (WAIS). The WAIS was used as a control test. The tests' internal consistency, rater agreement, stability and convergent validity were the focus of interest in the analysis. These investigators concluded that "The MMPI and the Rorschach are both valid, stable and reliable under certain circumstances. When either test is used in the manner for which it was designed and validated, its psychometric properties are likely to be adequate for either clinical or research purposes" (p. 230). Parker et al. (1988, reprinted in Kazdin, 1992) reported that the Rorschach does not perform adequately when used for exploratory purposes (i.e., no theoretical and/or empirically informed rationale).

There are good reasons why the evidence from meta-analytic reviews should be viewed as more credible than the conclusions drawn from narrative reviews. Simply and briefly stated, meta-analytic techniques are set of methods that help make sense of findings from a number of individual studies that have attempted to examine a related problem (Hunter & Schmidt, 1990). More specifically, meta-analytic techniques work to detect effects, or phenomena, that the pooled data support. These procedures enable researchers to deal more effectively with sources

of error and variation across studies, and identify moderator variables that may give rise to inconsistent results (Hunter & Schmidt, 1990). By contrast, narrative reviews are a relatively weaker method of phenomena detection, even when the number of studies being reviewed is fairly small (Hunter & Schmidt, 1990). Of critical relevance is the fact that the natural cognitive capacities of the narrative reviewer are too limited to deal with the vast amount of information that needs to be taken into account when attempting to integrate the findings from a large number of studies (Hunter & Schmidt, 1990).

In sum, a strong commitment to researching the Rorschach has been ongoing since the Boulder Conference. In addition, meta-analyses have detected an effect which now needs explaining.

Clearly, in order to accurately assess whether individual practitioners are using the Rorschach in a scientifically respectable manner, one would first need clear and detailed specifications of the conditions under which the device performs well followed by research designed to assess the extent to which practitioners' use of the instrument was consistent with these factors.

The Thematic Apperception Test (TAT): The TAT was developed by C.D. Morgan and H.A. Murray in 1936 as a test of Murray's theory of personality (Kline, 1993). Like the Rorschach, the TAT is also a controversial test with some psychometricians recommending its use in clinical practice by only very gifted clinicians. For example, following an evaluation of the TAT, Kline (1993) concludes that, overall, there is little to recommend the use of this device. On the other hand, Kubiszyn, et al. (2000) report that one meta-analytic review and several other studies have found the TAT to be a valid instrument in several respects, including "predicting functional or adaptive behaviors...to differentiate among Axis II conditions...and Axis I conditions...[and] to identify non-DSM conditions, such as differentiating patients who have experienced physical or sexual trauma from those who have not" (p. 121). Within such conflicting reports it is difficult to draw any definitive conclusions regarding the scientific respectability of the TAT, or the appropriateness of its continued popularity among clinical practitioners, internship directors (Duran, Blanchard & Mindell, 1988) and several APA-accredited clinical psychology doctoral programmes (Rossini & Moretti, 1997).

The Bender-Gestalt Visual-Motor Test: Developed by L. Bender in 1938, the Bender-Gestalt is purportedly a diagnostic instrument used for differentiating between organic brain damage and perceptual disturbances and as an aid for diagnosing various types of major psychiatric

disturbances (e.g., schizophrenia or depression) (Murphy & Davidshofer, 1994). This test has received considerable research attention with several administrative, scoring and interpretation systems having also been developed (Murphy & Davidshofer, 1994; Lezak, 1995). According to both Murphy and Davidshofer (1994) and Lezak (1995), there is adequate evidence testifying to this instrument's diagnostic ability with respect to the presence of brain damage. However, there is little evidence of its utility for the purposes of diagnosing non-organic pathologies (Murphy & Davidshofer, 1994).

The Draw-A-Person Test (Machover) (DAP): K. Machover was the originator of the DAP in 1949 (Murphy & Davidshofer, 1994). This test is purportedly concerned with measuring aspects of personality, such as impulses, anxieties, and emotional characteristics (Murphy & Davidshofer, 1994). As with many projective tests, scoring and interpreting the DAP is less than straightforward, with several systems being available (Murphy & Davidshofer, 1994; Lezak, 1995). The validity of this device is said to be questionable regardless of whether the user employs an objective scoring system or an idiosyncratic one (Murphy & Davidshofer, 1994). Hence, on the basis of its reported psychometric properties its continued use in practice is unjustified.

Unlike projective tests, which frequently involve considerable latitude with respect to the interpretation of results, objective tests have been defined as "...tests whose purport is hidden from subjects, thus making deliberate distortion (but not sabotage) difficult, and whose scoring is objective" (Kline, 1993, p.256). The following six tests may grouped under this heading.

The Draw-A-Man (Goodenough) (DMT): Initially developed in 1926 by F.L. Goodenough, and further developed in later years by D.B. Harris, the DMT was designed as a test of intellectual maturity for children aged 3 to 17 years, although it is best suited for children under 12 years (Kline, 1993). Kline (1993) concludes that the later version of the DMT has shown itself to have good reliability and validity and is simple to administer and score. Moreover, Kline (1993) asserts that the DMT loads heavily on Spearman's general intelligence factor, g.

The Minnesota Multiphasic Personality Inventory (MMPI): The MMPI was first published in the 1940s by Hathaway and McKinley as a diagnostic aid for the detection and differentiation of major psychiatric disturbances (Kaplan & Saccuzo, 1993). Along with the Rorschach, the MMPI is one of the most widely researched and used tests known to psychology (Kline, 1993).

However, despite evidence of an extremely strong and prolific commitment to researching this devise, and the reported popularity of the MMPI in clinical settings, some suggest that it has "...poor reliabilities, uncertain factor structure and dubious psychological meaning..." (Kline, 1993, p.460). It has also been noted, however, that the MMPI may be an adequate screening devise (Kline, 1993). Interestingly, in a survey of internship directors at 107 acute inpatient sites, the MMPI was used by more sites as part of a standard test battery than as a screening instrument (Sweeney, Clarkin & Fitzgibbon, 1987).

Data derived from MMPI protocols have been found to provide some increase in the accuracy of clinical judgement (Garb, 1998), meta-analytic reviews suggest it is has satisfactory validity (Parker, et., al, 1988, reprinted in Kazdin, 1992), and it performs well in terms of (1) describing personality, (2) differentiating between various disorders, (3) identifying the presence of psychosis, (4) predicting the misattribution of bodily sensations and other health related variables, and (5) simply administering the MMPI-2 and giving feedback has even been shown to have beneficial therapeutic effects (Kubiszyn, et al., 2000). While the MMPI may be one of the most frequently administered personality devices, practitioners have also reported that they place little reliance on self-report data in the assessment and diagnosis of personality disorders (Westen, 1997).

In sum, the MMPI's use in clinical practice appears justified when the device is used for the purposes for which it was developed.

The Stanford-Binet Test: This test has historically been "...the benchmark test of intelligence" (Kline, 1993, p. 405) and has featured as one of the top ten tests used in clinical practice from 1935 to 1982 (Lubin, Larsen & Matarazzo, 1984). This instrument is reported to be extremely sound psychometrically when used with children aged between 5 and 12 years (Kiline, 1993). Test-retest reliabilities for newer fourth edition of the Standford-Binet have been reported between .95 to .99 for the entire test (Thorndike, Hagen &Sattler, 1986). The convergent validity coefficient for the previous version of the Stanford-Binet with the WAIS is .78 (Kline, 1993). Equally sound instruments, the WISC and the Wechsler Preschool and Primary Scale of Intelligence-Revised, have largely supplanted the widespread use of the Standford-Binet for the purposes of assessing child intelligence (Lubin, et al., 1984).

The Wechsler-Bellevue Scale (1938): The Wechsler Intelligence Scales (WIS) are now synonymous with intelligence testing and continue to be revised and improved. Thus, their clinical use has always been well supported by stable psychometric characteristics (Kline, 1993). The Wechsler-Bellevue Scale was one of the first WIS to be developed (Lezak, 1995) and was initially widely used in clinical practice (e.g., Lubin, et al., 1984). However, looking at the data from surveys spanning several years, a decline in popularity of this test, along with a rise in the popularity of alternative intelligence tests, can be observed in clinical settings (Sundberg, 1961; Lubin, et al., 1984; Hunsley, 1996).

The Wechsler Adult Intelligence Scales (WAIS): Ongoing debates about the nature of intelligence notwithstanding (e.g., McClelland, 1973; Barrett & Depinet, 1991; Neiser, et al., 1996), it is argued that the WAIS's psychometric properties are well substantiated for use in clinical settings and it reliably and validly measures both crystallised and fluid intelligence (Kline, 1993).

The Wechsler Intelligence Scale for Children (WISC): This test was developed as a measure of intelligence for children aged between 5 and 15 years (Murphy & Davidshofer, 1994). The WISC is a more sophisticated device than its predecessor, the Wechsler-Bellevue and has demonstrably sound psychometric characteristics (Murphy & Davidshofer, 1994).

Clinical practitioners have consistently made use of the 10 testing instruments briefly reviewed above. In only one instance (the DAP) does it seem decisively clear that there is no scientific support to justify the use of the test. In three instances (Rorschach, MMPI and TAT) the evidence and advice about the use of the instrument is often conflicting. However, meta-analytic reviews of the Rorschach and the MMPI indicate that these tests are reliable and valid when used appropriately. In all other six cases the devices are psychometrically sound and on that basis their use in practice is well justified. In addition, Wade and Baker (1977) found that their sample of practitioners used more objective tests for more clients more often than projective tests, and for a variety of purposes including assessment, diagnosis, and decision making regarding assignment to treatment. Of concern, however, is their dated finding that a significant proportion of clinical practitioners reported using idiosyncratic scoring and evaluation procedures for both objective and projective tests.

Many of the tests themselves seem to have acceptable psychometric properties that justify their use for particular purposes. However, a more penetrating assessment of scientifically respectable behaviour amongst clinicians in relation to their use of these psychometric instruments would have to include a more detailed appraisal of whether they use these devices for the purposes for which they were intended and have been psychometrically evaluated. In fact, a more thoroughgoing analysis of this issue might attempt to relate practitioners' use of various devices over time with the information contained in the widely acknowledged authoritative source, Buros's *Mental Measurement Yearbooks* (e.g., Buros, 1992).

Use of diagnostic criteria

The *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association) is the most widely used classification system available to clinical psychologists as an aid both in detecting the presence of mental health problems and in identifying the particular type of problem(s) a client may have. At the same time, the DSM system of classification is not without its strong critics nor free of important shortcomings (e.g., Wakefield, 1992). This is especially true with respect to the classification of personality disorders (e.g., Caplan, 1991; Lezenweger & Clarkin, 1996; Crits-Christoph, 1998). Indeed, the latest edition of the manual (DSM-IV, American Psychiatric Association, 1994) clearly asserts that users of the manual should neither use it "in a cookbook fashion...[nor apply diagnostic criteria] in an excessively flexible and idiosyncratic manner" (p. xxiii). Such advice is perfectly appropriate in light of the following considerations.

First, the disorders in the DSM are of a prototypical nature. Second, the evidential foundation for many of the DSM's personality disorders is highly questionable. For example, the DSM-III-R criteria for narcissistic personality disorder were neither compiled on the basis of empirical evidence, nor on the basis of well qualified clinical expertise (Davis, Blashfield & McElroy, 1993). In addition, although the DSM-IV revisionists claimed to have based changes in the manual on empirical evidence, Caplan (1991) has strongly argued to the contrary. Third, the critical problem in the area of personality disorders is how one knows when a diagnosis is valid in the absence of a 'gold standard' (i.e., the criterion problem) (Garb, 1998). Thus, in examining the scientific behaviour of clinical practitioners in terms of their adherence to diagnostic criteria, a judgement needs to be made about what scientifically minded behaviour by clinicians would amount to in a given context.

Personality disorders and the use of diagnostic criteria

In a mixed sample of clinical psychologists (n = 190) and psychiatrists (n=101) Morey and Ochoa (1989) examined the extent to which clinicians adhered to DSM-III diagnostic criteria and decision rules in reaching a personality disorder diagnosis. To do this, each clinician provided the investigators with information for one client whom they had been seeing for 10 hours or more, and their assigned personality disorder diagnosis. By strict adherence to the DSM-III, the researchers then reached their own diagnoses based on the same case materials. This formed the basis from which to analyse any discrepancies and, therefore, the degree to which the practitioners adhered to the DSM-III when making a personality disorder diagnosis. Overall findings showed that in 72% of cases clinical diagnoses were at variance (overdiagnosis or underdiagnosis) with the research (criterion) diagnoses. The investigators concluded that "[t]hese results suggest that one explanation for the consistently low estimates of reliability of the clinical diagnosis of personality disorder may be poor adherence to the operational criteria provided by the diagnostic manual" (pp.190-191). Furthermore, the results from this study have been successfully replicated using the same general procedure and DSM-III-R criteria (Blashfield and Herkov, 1996).

That reliability estimates would likely increase if clinicians rigidly adhered to the personality disorder criteria is undoubtedly correct. However, a relevant issue is whether strict adherence to an extremely scientifically unstable component of the DSM's diagnostic system is to be interpreted as scientifically responsible (rational) behaviour? The next study to be reviewed is perhaps more illuminating with respect to this question.

Davis, et al. (1993) attempted to examine which of three decision-rule models (polythetic, additive or weighting) clinicians relied upon when using only case history information and DSM-III-R criteria to arrive at a diagnosis of narcissistic personality disorder. Survey respondents (42 psychologists and 17 psychiatrists selected from yellow page listings) were asked to read 20 case histories, 6 of which were the research variables of interest. These research case studies differentially varied in two ways. First, they varied in terms of the number of diagnostic indicators (2, 4 or 6 re-worded DSM-III-R criteria) they contained. Second, based on empirical findings regarding which of the 9 DSM-III-R criteria were more highly associated with narcissistic personality disorder, the weight of the criteria included in the case histories also varied. The other 14 case histories contained information that was consistent with the other listed DSM-III-R personality disorders, including mixed personality disorder type, and no

personality disorder. How clinicians diagnosed these 14 case histories was unfortunately not part of the study. For all case histories participants had to indicate which disorder diagnosis they would make, if any. The investigators reasoned that if clinicians were adhering to the DSM's polythetic decision-rule model when making a diagnosis of narcissistic personality disorder, they would only make a diagnosis of the disorder when 6 of the 9 possible DSM-III-R criteria were evident in the case history (the DSM requires 5 of the 9 criteria to be met for a diagnosis to be made). If clinicians used a weighting decision-rule model the investigators expected to see clinicians often diagnose the target disorder when less, but more weighty, criteria were present. The majority of respondents (72%) diagnosed narcissistic personality disorder when 4 criteria were present, some (22%) gave the diagnosis when 2 criteria were evident, and when 6 criteria were present a large majority (78%) diagnosed the target disorder. In addition, there was a higher overall diagnostic frequency for case histories that contained weighted criteria relative to those that contained unweighted criteria. Hence, the behaviour of the majority of these clinicians was both in line with empirical findings and did not excessively deviate from the DSM.

Yet another study concerning the diagnosis of personality disorders was conducted recently by Westen (1997). This study looked at the differences in diagnostic practices between clinicians and researchers. While researchers tend primarily to utilise self-report measures or structured interviews to identify and study individuals with personality disorders, practitioners utilise alternative methods. Two studies were conducted, with the second being a replication involving a large sample of mostly psychologists drawn from 3 APA divisions - clinical, psychotherapy and psychoanalysis. Subjects were provided with a list of 5 methods for diagnosing personality disorders (administration of questionnaires, gathering collateral information from significant others, observations of the client's behaviour in sessions, client's descriptions of their present and past interpersonal relationships, and direct inquiries derived from the DSM-IV personality disorders criteria. Participants were asked both to rank these methods in order of their diagnostic importance in practice and also to rate the degree to which they relied on each method to facilitate the diagnostic process. Regardless of clinicians' theoretical orientation, it was found that they placed much greater reliance on the data they collected from clients' descriptions of their present and past interpersonal patterns and observations made in session, compared to the other 3 methods.

Westen's (1997) research purpose was not to assess whether or not clinicians adhered to diagnostic criteria, but whether their personality assessment practices included a strong reliance on the direct questioning method as do popular research practices. The present concern is how to interpret the diagnostic practices of the clinicians. Not surprisingly perhaps, an answer to this question is less than straightforward. First, Westen (1997) cites evidence in support of the idea that unconscious processes "considerably bias...answers to direct questions about [the self], particularly when the questions have implications for...self-esteem" (p. 897). Second, the assessment devices used by researchers pose direct questions in accordance with DSM-IV criteria, yet along with other assessment devices, they too have been shown to evidence unsatisfactory validity and poor reliability across settings (Crits-Christoph, 1998; Westen, 1997; Widiger & Costa, 1994). Third, after reviewing psychosocial treatment outcomes for avoidant personality disorder, Crits-Christoph (1998) notes that "a comprehensive assessment of interpersonal problems" (p. 547) appears to be particularly important. Fourth, clinical judgement research has also shown that judgements based on clinical impressions and interview data are frequently very poor (Garb, 1998; Dawes, Faust & Meehl, 1989).

It seems abundantly clear that all assessment strategies in the area of personality disorders have significant weaknesses to the extent that no one method appears to recommend itself. This is extremely disheartening given that 93% of clinical psychologists working in assessment services most frequently conduct personality-psychopathology assessments (Camara, Nathan & Puente, 2000). Perhaps the root of the problem in the area of personality disorders has to do with the issue of how construct validation has been traditionally approached (Haig, 1999). For instance, Haig (1999) argues that traditional methods of construct validation have inappropriately relied on the hypothetico-deductive account of scientific method and null hypothesis tests of statistical significance. These issues are discussed further in Chapter 8.

From a different perspective, however, what can be said about Westen's (1997) study is that it appears to be a nice example of the Boulder Model in action, namely the movement from practice to science and from science back to practice. For example, Westen (1997) states that the diagnostic criteria for personality disorders originated from clinical observations, but at the same time, assessment methods subsequently developed by researchers deviated from clinical practice and have been found wanting in reliability and validity. By seeking to identify how experienced clinicians approach the assessment of personality disorders and examining

diagnostic process methods, Westen (1997) goes on to suggest ways in which research and clinical methods may be mutually enhanced in this area.

Major depression and the use of diagnostic criteria

One study has examined mental health professionals and their knowledge of DSM-III diagnostic criteria for major depression (Rubinson, Asnis & Friedman, 1988). Unfortunately, the number of subjects in this study was small (N=54) and comprised nurses, psychiatrists, psychiatric residents, social workers and psychologists working in two psychiatric department training hospitals. Furthermore, the number of individuals associated with each profession were not adequately reported. Hence, it is unclear whether the findings from this study can be interpreted as an accurate reflection of clinical psychologists' understanding of the diagnostic criteria in question. Bearing this in mind, the nature and results of the study will be described as it appears to be the only published study concerning adherence to diagnostic criteria in relation to major depression, rather than the personality disorders, that includes psychologists in the sample. Participants were asked to complete a 15 item true/false questionnaire that had been devised by the investigators to assess their knowledge of the DSM-III's criteria for a major depressive episode. More than 20% of the sample responded incorrectly to 7 of the questionnaire items and no item was answered correctly by all participants. The most frequently occurring error, made by 48% of the sample, involved professionals' beliefs that one could only diagnose a major depressive episode if one or more vegetative signs were present. A second misconception, held by 41% of the sample, included the belief that the low mood found in major depression was qualitatively clearly different from the dysphoric mood associated with less severe depression. What these findings amount to, as the researchers noted, is that without appropriate knowledge of the criteria for major depression, diagnostic reliability will be undermined.

No other studies specifically targeting clinical psychologists' use and/or knowledge of diagnostic criteria could be located through the PsycInfo data base. The few studies that have been explicitly concerned with adherence to diagnostic criteria by clinical psychologists have examined this aspect of their behaviour in relation to the personality disorders. As previously discussed, the classification and diagnostic criteria for personality disorders are amongst the most controversial of the DSM's disorders. It would surely be inappropriate to label clinicians behaviour as unscientific in terms of their reliance on information obtained from psychometrically unsound devices yet, at the same time, insist that slavish adherence to

empirically dubious diagnostic criteria for personality disorders is demonstrative of scientifically respectable behaviour.

The evidence that has been reviewed above concerning the clinical assessment practices of personality disorders suggests that clinicians (a) are sensitive to the limitations of the DSM classification system for personality disorders, (b) are sensitive to the limitations of direct questioning methods for assessing personality disorders, and moreover, (c) rationally approach the problem of assessing the presence and type of personality disorder by (i) behaving in ways that appear to be consistent with empirical evidence (e.g., Davis, et al., 1993), (ii) behaving in ways that are in keeping with critical implications derived from empirical studies (e.g., Crits-Christoph, 1998), and (3) remain guided by both the DSM's diagnostic criteria and its caveats (e.g., Davis, et al., 1993). It may be reasonable to suggest that in other contexts, where the disorders and their criteria are more scientifically stable than they are in the area of personality disorders, clinicians would adhere more closely to DSM criteria.

Practitioners and approaches to therapy

As noted throughout this thesis, the claim that clinical practitioners are poor consumers and users of scientific research has largely been uncritically accepted. The failure to seriously challenge this assertion, and critically examine more thoroughly the complexities associated with defining and measuring research utilisation, leads to the conclusion that the Boulder Model has not been implemented. The apparent strength of this conclusion is bolstered further by the fact that schools of psychotherapy have proliferated over the years. For example, by the mid 1960s there existed 60 different approaches to therapy (Garfield, 1994), with this figure now in excess of 460 (Hanna, 1994). Moreover, many authors imply that too many clinicians cobble together their own approaches to therapy irrespective of what the empirical literature has to say. For example, in 1989 one author noted that "the practice of psychotherapy has always proven to be richer than the theories developed to explain and guide it (Tjeltveit, 1989, cited in Hanna, 1994, p.125). A recent example pertaining to these comments is Francine Shapiro's eye-movement desensitisation and reprocessing (EMDR) technique for the treatment of post-traumatic stress disorder. To date, EMDR has some empirical support suggesting that this approach "may promote recovery...[but]...[i]ts mechanism of action is not...based on any contemporary theories of human behavior, learning or cognitive science" (Keane, 1998, p. 403). Similarly, Kendall (1998) writes that despite the fact that scientific clinical psychology has

"delimited...several approaches that qualify as distinct forms of treatment...we are still exposed to an inordinately wide array of types of treatment" (p.4).

As far as the Boulder Model is concerned, the logic of these arguments can be summarised thus: Premise one states that practitioners do not consume and utilise scientific research. Premise two asserts that the number of schools of psychotherapy are greater than empirically warranted. It is concluded, therefore, that the Boulder Model has not been implemented. The review of the relevant empirical literature undertaken in this thesis does not support the correctness of the first premise. By itself this is enough to undermine the soundness of the argument. However, the soundness of the argument can also be challenged in other ways.

Leaving aside for the moment the issue of whether a particular approach to therapy has or has not received the 'blessing' of science to further warrant its clinical application (i.e., outside of a practitioner's clinical experience), consider the following points. Theoretical diversity within professional clinical psychology unambiguously meets Boulder conferees' desire for the profession to be characterised by "breadth of approach" (Raimy, 1950, p. 81). More to the point, theoretical diversity is not only characteristic of all scientific disciplines, including general psychological science (Royce, 1985), but is a necessary prerequisite for the advancement of scientific knowledge. It is ultimately through the critical interplay of theories that science advances (Dixon, 1983). Furthermore, science may also legitimately be advanced through what Pinker (1997) refers to as a reverse-engineering approach. Reverse-engineering, in the present context, is what clinical scientists sometimes do when a new approach to therapy is promulgated by practitioners whereby the virgin approach is then more rigorously examined in order to work out why and how the therapy works. In a forward-engineering approach, the theory and the therapy derived from it would already be worked out prior to being used in clinical practice. The point to be made here is that both approaches to advancing scientific knowledge are legitimate, and both are consistent with the Boulder Model. It is the constant critical interplay of both clinical science and clinical practice that not only creates the *field* of clinical psychology, but more importantly, also provides opportunities for advancing the field's knowledge base.

That this necessary critical interplay is indeed a reality within clinical psychology (and the wider discipline of scientific psychology) is reflected in various ways. Several examples of this mutually informative interplay in action have already been highlighted in relation to (1) the assessment of personality disorders (see Western, 1997), (2) the identification of the need to

develop new research methods to resolve the differences between efficacy/effectiveness approaches to the empirical examination of outcomes of therapy (Seligman, 1998), (3) practitioners' and researchers' responses to criticisms of the psychotherapy research literature (Dar, et al, 1994; Francis & Aronson, 1994; Morrow-Bradley & Elliot, 1986), and (4) treatment programme innovations that are both stimulated by current treatment deficits in a particular domain and informed by relevant extant theories and empirical findings (Coldwell, et al, 1998; Cull & Wehner, 1998; Foote, et al., 1998; Foxx, 1998; Fristad, et al, 1998; Levine & Nebelkopf, 1998; Longshore, et al., 1998; Lovell & Jemelka, 1998; Miller, 1998; Sloane & Rowe, 1998; Spencer, 1998; Talbot, et al., 1998; Twemlow & Sacco, 1998). Moreover, as far as the development of novel approaches to therapy are concerned, from a scientific perspective, the significant issue is not who generates the novelty (clinical scientists or clinical practitioners), but rather the soundness of the method by which the novel approach was initially spawned and subsequently developed. This point will be returned to in Chapter 8.

In sum, one cannot argue that merely because practitioners contribute to the proliferation of different approaches to therapy that the Boulder Model has failed to be implemented. Part of what it means to be a scientist involves generating innovative approaches to solving problems relevant to the subject matter. Thus, it follows that practitioners further evidence their capacity to fulfil their role as scientists in the sense that they can, and do, contribute to the presence of diversity that continues to provide *opportunities* for the field's knowledge base to advance.

It can be argued that the view being espoused here is naïve because the claim that practitioners are fulfilling a further aspect of their role as scientists is based on flimsy, circumstantial evidence. However, this criticism can be dealt with as follows. First, the evidence shows that the majority of practitioners who provide services to individuals show a realistically healthy respect for the value of scientific research, and although not definitive, this evidence is empirical in nature. Second, this thesis has provided preliminary evidence to suggest that clinical psychologists involved in the development of treatments aimed at groups of individuals also show a healthy respect for scientific research. Third, it has been argued herein that consideration of research is the most realistic definition of research utilisation. In light of these three points, it would be surprising to find that schools of psychotherapy have not been realistically stimulated by a combination of existing scientific findings, relevant theories, and clinical experience. For example, the development of Interpersonal Psychotherapy (Klerman, Weissman, Rounsaville & Chevron, 1984) for the treatment of major depression (without

psychosis), which now has the status of an empirically supported therapy derived from the application of efficacy research methods (Craighead, et al., 1998), was initially stimulated by empirical findings in social psychology as well as being influenced by two 1950s theoretical perspectives in clinical psychology (Craighead, et al., 1998).

A fourth point to consider is that independent evaluators (*Consumer Reports*) of psychotherapy, as it is conducted in actual practice, have found therapy to be effective (Seligman, 1998). Therapeutic gains have been shown to be significant for 90% of the client base and consistent with meta-analytic efficacy studies (Seligman, 1998). The task before the field of clinical psychology now, as Seligman (1998) points out, is to develop new research methods that are capable of integrating the strengths of both efficacy and effectiveness methods of research to answer the questions that neither approach can answer alone. To this suggestion it can be added that equal attention should also be given to the findings from the many process-outcome studies that have recently been reviewed (Orlinsky, 1994).

Summary and discussion

In this section of the thesis the broad question addressed was 'Do clinical practitioners conduct their professional activities in a scientific manner?'. To help answer this question an attempt was made to indirectly examine the behaviour of practitioners by reference to clinical judgement/reasoning methods used in practice, the tests clinicians use in practice, the use of diagnostic criteria, and approaches to psychotherapy. In some instances little empirical research is available from which to draw any strong conclusions about the actual scientific status of specific activities that comprise professional practice. This is particularly true in relation to the issue of whether the recommendations emanating from the body of research findings in the area of clinical judgement/reasoning are being adopted by practitioners and the method by which novel approaches to therapy are spawned. However, what evidence is available can largely be interpreted as indicating that scientific behaviour is more, rather than less, indicative of how clinicians conduct professional practice. For example, only one of the ten most popular psychometric tests used in clinical practice was found to be unequivocally unjustified based on its psychometric properties. In addition, given the scientific uncertainty that still pervades the area of personality disorders, clinicians appear to approach the assessment and diagnosis of personality disorders in a rationally acceptable manner. Adding to the critical comments that have accompanied the attempt to address the question at hand, it also becomes particularly clear that it is no easy matter to define what it means to behave as a scientist. As Page (1996) puts it,

science has many faces such that the "term *science* does not describe a single doctrine, domain of knowledge, or methodology...it describes something that is at best multifaceted" (p. 103). The finer points of this claim, and their implications for clinical science and scientific clinical psychology, will be taken up in a Chapter 8 of this thesis when different philosophies of science are described and critically discussed.

The present attempt to evaluate the implementation status of the Boulder Model has so far largely concentrated on the issue of whether clinical practitioners manifest a scientist-practitioner identity. To a lesser extent attention has also been given to the other scientist-practitioner products of the Boulder Model, namely, those psychologists who concentrate their careers in clinical science and those who combine both science and practice. It has been noted that only one study (Beutler, et al., 1995) has empirically addressed the question of whether clinical scientists attempt to inform their scientific activities by consuming information from practice literature, and its a study that should be interpreted with caution.

While something about the nature of the field of clinical psychology can be gleaned from a critical examination of the activities of its members, a more panoramic perspective will be taken in the next chapter of this thesis in order to address the question of whether the field of clinical psychology is in a position to adapt to changes in science, technology, and society.

CHAPTER 7

Readiness to adapt to changes in science, technology and society

Boulder conferees (Raimy, 1950) addressed the task of mapping out the general nature of clinical psychology. They also predicted that if certain recommendations were adopted, they would furnish the field with the mechanisms necessary to adapt to changes in science, technology, and society. According to the wisdom of Boulder conferees, the primary mechanisms by which the field of clinical psychology would be in a strong position to adapt to change included (a) training students in both research and practice, such that a proportion of graduates would continue to enter each of the three career paths, (b) a basic core curriculum for all clinical psychology students, complemented by diversity across training institutions, (c) breadth of training for each individual student of clinical psychology, with specialisation occurring at the postdoctoral level for those who desired to specialise in an area of interest, and (d) the ongoing modification of training policies to prevent the vicissitudes of social needs determining the direction of education and training in clinical psychology and ensure the discipline was also self-determining. The implementation of the first of these adaptive mechanisms has been addressed in Chapter 3. Before going on to examine whether the other three recommendations are in general accord with reality, some further comments are required.

In terms of the evolution of the field of clinical psychology, it is important to spell out more clearly the issues underlying the need for a balance between uniformity of training and diversity of training across programmes. It has to be remembered that in 1950, when Boulder conferees met to discuss the training and education of clinical psychologists, there was no coherent *field* of clinical psychology, and little in the way of a sound clinical knowledge base. In terms of actually defining the future field of clinical psychology, Boulder conferees cast their net so wide that essentially no boundaries were recognised. For example, the field of clinical psychology was to stretch itself across both normal and abnormal development and behaviour, cover all age groups across the life-span, and deal with both minor problems of adjustment through to major psychiatric disturbances (Raimy, 1950). Arguably, placing no boundaries on the field of clinical psychology was an initial strategy aimed at maximising the chances of the discipline eventually finding a niche for itself as it evolved and learned more about where its strengths and weaknesses lay as a science and as a profession. However, Boulder conferees were insightful enough to recognise that if either extreme uniformity or diversity of education and training in

clinical psychology was allowed to dominate the education and training landscape, the eventual impact on the field's capacity to adapt, and remain connected with the parent discipline of psychology, would be negative.

In order to maintain links with the parent discipline of psychological science, and for clinical psychologist to maintain a shared identity with one another, uniformity in the curriculum was seen as both desirable and necessary. However, a system that is completely uniform stands little chance of adapting to change. Hence, outside of a core curriculum, diversity was rightfully seen as a necessary step toward creating the appropriate opportunities for the subsequent selection of the best approaches (e.g., research methods, theory, assessment devices, and therapy).

However, while it is true that diversity is a necessary prerequisite for adaptation, the issue can be made more complex if that diversity is *so* varied that the detection of advantages (i.e., selection efforts) becomes impeded. In the domain of research, for example, when research samples contain large amounts of variability, or the sample size is small, the statistical power to detect differences in effect size is compromised (Hallahan & Rosenthal, 1995). Thus, the field of clinical psychology would be optimally served if the education and training landscape adopted a reasonable balance in terms of uniformity and *constrained* diversity. In fact, although opinions may differ with regard to whether there is a core curriculum, the evidence suggests that clinical psychology training programmes are managing the balance between uniformity and diversity reasonably well.

Uniformity

Although conferees attending training and education gatherings over the years have been reluctant to *prescribe* a common core curriculum for clinical psychology students (e.g., Fox & Barclay, 1989; Raimy, 1950; "Resolutions Approved", 1987), with the exception of the Chicago Conference (Hoch, Ross & Winder, 1966), agreement about a common core curriculum for all clinical psychologists, irrespective of the particular training model (e.g., Bourg, Bent, Callan, Jones, McHolland & Stricker, 1987, cited in Fox & Barclay, 1989; Mayne, Norcross & Sayette, 1994; Peterson, 1985) has never drastically deviated from the suggested core curriculum contained in David Shakow's 1947 report endorsed at the Boulder Conference (Raimy, 1950). Furthermore, the core curriculum for clinical psychologists, as recommended by Boulder conferees' (Raimy, 1950), also overlaps with the core curriculum for the wider psychological discipline (Ellis, 1992; Fox & Barclay, 1989).

For example, the Boulder Conference (Raimy, 1950) endorsed the following core areas that could be organised into courses: (a) general psychology (e.g., human physiology, comparative psychology, schools of psychology, developmental psychology, and social psychology), (b) psychodynamics of behaviour (e.g., personality theory, motivation, normal and abnormal behaviour), (c) diagnostic methods (e.g., psychometrics, observation, reporting, and practicum work), (d) research methods (e.g., research design and statistics), (e) some familiarity with related disciplines (e.g., physiology and neuroanatomy), and (f) psychotherapy. As Fox and Barclay (1989) report, the Mission Bay Conference held in 1986, which addressed itself to the professional school model of training in clinical psychology, endorsed a comparable list of core knowledge areas. Similarly, such consistency concerning a core curriculum for clinical psychology training programmes is found in the form of required and recommended courses, or topic areas, listed by doctoral programme clinical directors (O'Sullivan & Quevillon, 1992), and in the form of accreditation guidelines emanating from the Gainesville Conference of 1990 (Belar & Perry, 1992). Furthermore, this commonality tends also to characterise the core curriculum of education and training programmes for psychologists in the following parts of the world: Western Europe, Latin America, Australia and New Zealand, the United States, and Israel (Nixon, 1990; O'Gorman, 1994). Therefore, uniformity in the training and education of clinical psychologists in the form of a core curriculum is an aspect of the Boulder Model that has been implemented for some time.

Facets of diversity and clinical psychology

Theoretical diversity across the field of clinical psychology

Theoretical diversity has most certainly characterised the field of clinical psychology from 1949 until the present day. However, eclecticism tends to have predominated (e.g., Beutler, Williams & Wakefield, 1993; Byrne, 1982, 1983; Byrne & Reinhart, 1990; Cohen & Suchy, 1979; Garfield, 1994; Garfield & Kurtz, 1976; Jensen, Bergin & Greaves, 1990; Kazdin, Siegal & Bass, 1990; Morrow-Bradley & Elliot, 1986; Norcross & Prochaska, 1983; Simionato, 1991; Talley, Strupp & Butler, 1994; Tyler & Clark, 1987; Wade & Baker, 1977).

Within clinical psychology training programmes themselves, recent data show that increasing numbers of Boulder Model clinical faculty members are aligning themselves with a cognitive-behavioural/social learning orientation. A 1990 survey showed that the mean percentage of clinical training programme directors espousing this theoretical orientation was 42.2% (Sayette

& Mayne, 1990). By 1994, another survey showed that 55% of clinical training directors endorsed a cognitive-behavioural/social learning orientation (Wisocki, Grebstein & Hunt, 1994). If this trend continues one would expect to see increasing numbers of practitioners in the field also subscribing to a cognitive-behavioural/social learning approach. Having said this, the theoretical orientation of one's academy instructors is not the only factor that appears to be involved in an individual's selection of a preferred theoretical orientation.

Norcross and Prochaska (1983) empirically examined factors that influenced clinical practitioners' adoption of one theoretical orientation over another. These investigators asked clinical psychologists to indicate the extent to which different factors had influenced the selection of their preferred theoretical orientation. Participants with less than ten years of postgraduate experience tended to place more importance on outcome research, graduate training, and internship experiences when choosing a theoretical orientation than did those with more than ten years of clinical experience. For those with more than ten years of practice experience, outcome research was not identified as exerting a primary or strong influence on the adoption of a theoretical orientation. Rather, for these practitioners, clinical experience was the factor most strongly associated with the selection of a theoretical orientation.

In the main, eclecticism in clinical practice amounts to the use of a multiplicity of *techniques* that have been derived from various different, and often incompatible, theoretical orientations (e.g., Jensen et al., 1990; Garfield, 1994). Thus, eclecticism should not be construed as the manifestation of Boulder conferees' notion of the cross-fertilisation of ideas (Raimy, 1950). On a more positive note, theoretical integration work in clinical psychology has recently begun (Garfield, 1994). For example, in the early 1970s efforts toward integration were appearing in the both the journal and book literature (Garfield, 1994). The Society for the Exploration of Psychotherapy Integration was formed in 1983, with the first official integrationist journal (*Journal of Psychotherapy Integration*) published in 1991. Garfield (1994) reports that several handbooks have also been published that attempt to address the distinction between eclecticism and integration. Garfield (1994) goes on to note that "...although at present there is a growing emphasis on integration in psychotherapy, there is no clear agreement on what really constitutes integration [and a] glaring limitation... has been the lack of systematic research" (pp. 130-131). Nonetheless, this development should be viewed with optimism, for as Thagard (1992) argues the history of science tells us that scientific knowledge progresses through integrative advances made at the conceptual level.

Diversity and courses of study across clinical programmes

O'Sullivan and Quevillon (1992) surveyed 138 directors of doctoral programmes, the vast majority of whom stated that their programme followed the Boulder Model. Clinical directors were asked to rate each of 21 courses listed by the investigators according to whether the course was unnecessary, recommended or required in their clinical programme. A total of 9 courses received a mean rating from the majority of respondents which placed these courses in the category of recommended. However, it is clear from the size of the majority associated with each of the nine courses, and the reported standard deviations, that some programmes listed all six courses as unnecessary and some programmes listed two of the nine courses as required. Of the 12 courses given a mean rating by the majority of directors which placed the courses in the required category, 4 of these courses were only recommended by some programmes. Hence, the data from this study (O'Sullivan & Quevillon, 1992) can be interpreted to show that bounded diversity exists across programmes in terms of course content.

Clinical faculty and diversity of research topics

Because the majority of directors of Boulder Model clinical training programmes have indicated that they encourage their students to do research in a clinically relevant area (O'Sullivan & Quevillon, 1992), it is reasonable to assume that through various means (e.g., role modelling, mentoring, and/or presentations), the content areas researched by clinical faculty will be translated into student exposure to a variety of clinical material outside of the core curriculum. Therefore, diversity within programmes is likely to produce a new generation of graduates whose knowledge base and research-practice interests are appropriately diverse.

When one examines data that have been gathered about the topics clinical faculty investigate (Sayette & Mayne, 1990), not only do they show that the research topics are diverse across clinical programmes, but, of equal importance, the diversity appears to be sensibly bounded.

Sayette and Mayne (1990) surveyed directors of accredited clinical psychology doctoral training programmes in order to identify areas that were being researched by the faculty of these programmes. Their investigation found that 115 programmes identified a total of 100 different topic areas that were being researched, either with or without research grant funding. Hence, the overall potential for students to be exposed to a rich variety of clinical material, over and above the core curriculum, appears to be manifest across clinical training programmes generally.

Furthermore, this diversity does not appear to be unbridled. For instance, about 32 different topic areas were being researched by only a small number of faculty in one or two programmes, but at the same time, several programmes and many faculty were engaged in research in the same topic areas. For example, approximately 39% of the programmes, involving 105 faculty, indicated that they were researching in the area of psychotherapy process and outcome. Substance abuse and affective disorders/depression were each researched by 41% of the programmes, involving 84 and 81 faculty, respectively. Thirty three percent of the programmes, and 67 faculty were investigating the area of violence/abuse/victim-offender, and 64% of the programmes involving a total of 222 faculty members indicated that they were researching in the area of behavioural medicine/health psychology. In sum, the data provided by Sayette and Mayne (1990) support the claim that there is bounded diversity across clinical training programmes.

Diversity of approaches to inquiry and methods of data analysis

On the matter of methods of investigation, the Boulder Conference report indicates that conferees did not want to see approaches to inquiry narrowly restricted to the experimental method. This is because they believed the discipline's opportunities to detect clinically unique phenomena would be unnecessarily limited (Raimy, 1950). For example the Report states

> Intensive studies of individual cases might well reveal the significant variables required for an adequate scientific account of personality dynamics and change...One cannot...question the case study as a means for making intimate observations, for getting "close to the data," for securing "clinical phenomena" that demand explanations, and for making dramatically evident our present lack of understanding (Raimy, 1950, p. 85).

Conferees also considered that clinical trainees would "need more than one course in [statistical methods of data analysis] in order to have sufficient proficiency to master new statistical techniques on their own" (Raimy, 1950, p. 87).

Although calls have come from many quarters in psychology to broaden the methods of inquiry employed in general psychological science (e.g., Henwood & Pigeon, 1992), and in the training of clinical psychologists (e.g., Barlow, et al, 1984; Belar & Perry, 1992; Bergin, Garfield & Thompson, 1967; Hoch, et al., 1966; Marshall, 1993; Raimy, 1950; Stricker, 1973), neither Boulder Model programmes (Keeley, et al., 1988), nor doctoral programmes associated with the

wider discipline of psychology (Aiken, et al., 1990) provide instruction and training in a diverse array of types of inquiry, or statistical methods of data analysis.

The overall lack of attention to different methods of inquiry and data analysis in clinical psychology is evidenced by the results of a large survey looking at general PhD psychology programmes, 78% of which included a clinical programme (Aiken, et al., 1990). This survey found that the statistics, methodology and measurement curricula were similar for both general PhD programmes and clinical programmes. This further testifies to a common core curriculum in these areas, but in most programmes statistics courses narrowly comprised analysis of variance and multiple regression (Aiken, et al., 1990). Many programmes did not appear to incorporate advances in the areas of statistics, methodology or measurement that had been made over the previous 20 years (Aiken, et al., 1990). Furthermore, the majority of all PhD programmes indicated that most of their students would not be competent to utilise a variety of investigative approaches, including qualitative research methods, single-subject designs, experimental designs for applied problems, evaluation research, survey research, or quasi-experimental research designs (Aiken, et al., 1990).

The types of inquiry characteristic of clinical dissertation research are also disappointingly restricted. Keeley, et al. (1988) analysed all clinical PhD dissertation abstracts published in the years 1965 and 1985. This investigation found that in both years the vast majority of dissertations were traditional experimental or correlational studies. On the other hand, in 1985 the number of dissertation abstracts that included the use of alternative modes of inquiry, such as descriptive-interpretative approaches or literature reviews, had increased to 10%, as compared with only 3% in 1965 (Keeley, et al., 1988).

Ironically, although the calls for clinical training to include instruction in a diverse array of research methods have come from within the ranks of self-proclaimed Boulder Model clinical psychologists, one survey by Shemberg, Keely & Blum (1989) found that the majority of directors of these programmes continue to give greater support to, and place more value on, traditional experimental and correlational research methods as compared to other approaches to inquiry. This survey provided clinical directors with a list of 6 research strategies (traditional experimental, phenomenological, survey, literature research, correlational, and non-experimental case study research) and requested that respondents to state whether each of these research methods would be acceptable for a PhD dissertation in clinical psychology. Participants were

also asked to rate the value to practitioners of findings from such research. The vast majority (over 90%) of the respondents endorsed, and highly valued, the experimental and correlational research strategies as contrasted with the other methods. On the other hand, a much smaller majority of participants said that they would support phenomenological and survey methods also, but they believed the findings from such research approaches were only of moderate value to practitioners. As the investigators (Keeley, et al., 1989) did not provide participants with an opportunity to identify any other approaches to research that they might find both acceptable for a doctoral dissertation and of value to practitioners (e.g., by including the category 'other' in the list of research approaches), the conclusion that clinical directors are resistant to supporting the use of a wider array of research methods in their programmes may be potentially misleading. However, this possibility seems unlikely given the Aiken, et al. (1990) findings.

Breadth versus specialisation of training in clinical psychology

Breadth of training

Boulder conferees believed that clinical psychologists should be broadly educated and trained in their discipline in much the same way as general medical practitioners are trained in theirs (Raimy, 1950). In a much earlier chapter of the thesis (Chapter, 3), it was noted that clinical graduates were capable of entering a variety of practice settings and the academy after graduation. Further, it was assumed at that point that this finding is what one would expect if Boulder Model programmes were providing students with a broadly based training. This issue will now be dealt with more directly.

Sayette and Mayne's (1990) data show that a total of 115 programmes responded to their survey, but the number of programmes endorsing a particular research area sum to 1,136. Thus, on average, within each programme individuals have the potential to be exposed to clinically relevant material in 10 different research areas. Furthermore, the majority of programmes (Belar, 1998) also have one or more of their own in-house clinics (e.g., family therapy, gerontology/ageing, forensic psychology, or anxiety disorders) [Sayette & Mayne, 1990]). These in-house clinics provide further opportunities for students to become broadly acquainted with several more focused areas as part of their educational and training experience. Belar (1998) reports that students "typically obtain at least 1,500 hours of supervised clinical experience prior to internship" (p.458). An important advance since the 1950s is that in-house clinics are now a common feature among the institutions that train clinical psychologists. In the early years following the Boulder Conference, it was frequently difficult for both university

clinical faculty and students to conduct research (Leitenberg, 1974). This was because the research had to be done outside of the university and the co-operation of the staff at external sites was not necessarily forthcoming (Leitenberg, 1974).

During the first decade or so following the Boulder Conference, training for individual students of clinical psychology was broad in the sense that students were exposed to several different areas of psychology, but as the number of available course at that time were fewer, and department sizes smaller, breadth was narrowly bounded (Ellis, 1992). Moreover, under such circumstances, it is reasonable to assume that students' breadth and depth of training went hand in hand. There is no doubt that a broad clinical training still appears to be characteristic of clinical training programmes, but as training has become increasingly more extensive over the years (Belar, 1998), the question arises as to whether students' depth of knowledge is being sacrificed for breadth. It cannot be assumed that any increase in the duration of training programmes necessarily increases depth of training (Nixon, 1990). Programmes may simply add more topic areas to the training. Indeed, internship directors have identified many perceived shortcomings of clinical students trained within the Boulder Model (e.g., Drabman, 1985; Snepp & Peterson, 1988).

Three surveys published in 1974, 1976 and 1981 canvassed the views of internship directors about how well students trained within the Boulder Model were prepared for the internship (Snepp & Peterson, 1988). These studies indicated that large numbers of respondents believed that Boulder Model trained students had deficits in interviewing, assessment, diagnostic and therapeutic skills (Snepp & Peterson, 1988). Drabman (1985) described interns as largely naïve about recent advances in various areas of psychology, such as developmental psychology, psychometric theory, social and physiological psychology, the history of psychology and psychopharmocology (Drabman, 1985). Not all studies have yielded negative outcomes, however.

Snepp and Peterson (1988) asked internship directors to rate clinical trainees on the following dimensions: (1) individual psychotherapy, (2) group psychotherapy, (3) family and couple therapy, (4) diagnostic interviewing, (5) consultation, (6) cognitive assessment, (7) projective assessment, (8) neuropsychological assessment (9) report writing, and (10) theoretical understanding. On every aspect just mentioned, supervisors rated the majority of interns to be at least adequate. Given that clinical students currently receive 1,500 hours of pre-internship

training (Belar, 1998), it would be interesting to see whether internship supervisors continue to positively evaluate pre-internship preparation.

Specialisation and postdoctoral clinical psychology programmes

In a discipline as large in scope as clinical psychology, Raimy (1950) stated that some specialised training was bound to occur. However, most specialisation was to be left until after graduation (Raimy, 1950). Ever since the Boulder Conference, there seems to have existed considerable consensus on this matter (Graham & Fox, 1991; Wiens, 1993). Furthermore, continuing education programmes for postdoctoral clinical students have been a reality for at least the past 40 years (Wiens, 1993). However, until recently these programmes have been running in the absence of any officially co-ordinated quality control mechanisms (Wiens, 1993).

In 1959 the National Institute of Mental Health supported about 20 postdoctoral programmes (Wiens, 1993). In the early1960s various institutions (e.g., Veterans Administration sites, medical schools, private clinics, and an institution for gifted children) were providing one -, or two-year postdoctoral programmes, and by 1967 the number of postdoctoral programmes numbered 46 (Wiens, 1993). By 1988 almost 400 sites, including some universities, claiming to provide postdoctoral clinical programmes were identified (Wiens, 1993). However, the APA had little knowledge of the nature of these postdoctoral programmes at this time. Hence, in 1988 a formal body, in the form of the Joint Council on Professional Education in Psychology, was established to research the area (Wiens, 1993). Writing 8 years ago, Weins (1993) suggested that a number of problems were still being addressed in this domain. These included the definition, identification and taxonomy of 'specialty' areas in psychology as a whole, and clinical psychology in particular, the number of sites providing postdoctoral education and training programmes in any one year, the definition of a postdoctoral 'programme', and the important task of developing a system of accreditation and quality standards for such programmes (Wiens, 1993).

Because two post-doctoral training programmes in psychology have now gained APA accreditation ("Accredited internship and postdoctoral programs in professional psychology: 1997"), one can assume that official guidelines and quality standards have now been developed.

Training policies, changes in society and other factors involved in the determination of clinical psychology

Of all the issues that have so far been tackled in this thesis in an effort to gain greater clarity about the Boulder Model's implementation status, the most complex matters to address concern (a) the identification of different factors that have contributed to the determination of the nature of education and training in clinical psychology, and ultimately the character of the wider field of clinical psychology (e.g., Altman, 1987), and (b) the degree to which different factors have functioned to determine the character of the discipline and, therefore, the extent to which clinical psychology successfully balances the tension between self-determination and determination by changes in the mental health needs of society.

The Boulder Conference (Raimy, 1950) dealt with three main themes that were believed to be the most influential determinants of the profession. Two of these themes were (1) training policies, accreditation matters, and the licensing and certification of clinical psychologists, and (2) the assessment of public/social mental health care needs (Raimy, 1950). Given the extensive and dynamic nature of each of these topics, some of these issues can only be discussed in a brushstroke manner. Nonetheless, this approach should provide some indication of whether clinical psychology attempts to balance self-determination with changes in society's needs.

Training policies, licensing, certification[3] *and accreditation issues*

Because little was empirically known at the time of the Boulder Conference about what was the best way of educating and training clinical psychologists to be both scientists and practitioners (Raimy, 1950), conferees believed that there should be room for institutions to experiment with new education and training methods (Raimy, 1950). Furthermore, it was considered that accrediting policies would eventually "crystallize the profession itself" (Raimy, 1950, p.175). This belief was fostered by the expectation that relevant individuals (e.g., programme directors) and official organisations (e.g., the APA) would strive to improve such training programmes through an ongoing process of critical evaluation of how well the Boulder Model was doing in meeting its many objectives, and the implementation of any necessary modifications (Raimy, 1950).

[3] A license to practice one's profession is a state conferred credential, whereas a certificate to practice one's profession is a credential conferred upon the individual by an official body of the profession itself. Both credentials function to inform consumers of the services that may be provided by an individual holding these credentials and the qualification necessary to do so.

The regularity with which clinical education and training conferences are held suggests that a critical evaluative process of the kind mentioned immediately above has been ongoing since the Boulder Conference. However, because conference recommendations are not always implemented, conferences may not reflect an evaluative *and* change process at work (Laughlin & Worley, 1991). Also, the extent to which conference proposals concerned with changes in the education and training of clinical psychologists have been based on reliable, systematically gathered empirical data concerning progress and problems associated with implementing the Boulder Model, is somewhat unclear. In addition, Belar and Perry (1992) noted that "...in the 40 years since the model's inception it had never been fully articulated by a national conference of leaders in the field" (p.71). Thus, they concluded that "[m]any psychologists misunderstand this model" (Belar & Perry, 1992, p.72). Indeed, one prominent advocate of practitioner-oriented programmes recently revealed that he had been involved in the training of clinical psychologists for twenty years or more before he had acquainted himself with the nature of the Boulder Model as documented by Raimy, (1950) (Stricker, 2000).

What is clear, however, is that some members of the APA gave up on attempts to improve clinical training *within* the Boulder Model framework by the time only four or five classes of students had gone through such programmes (e.g., The Clark Committee, 1967). Furthermore, Fox and Barclay (1989) argue that the introduction of practitioner-oriented programmes and the PsyD degree was also partially fuelled by a minority of newly graduated individuals who were dissatisfied with their training within Boulder style programmes.

Whether accreditation policies can be said to finally crystallise the profession of clinical psychology is a moot point. Much of the literature on these matters leaves one with the sense that the entire system of training policies and practices, and accrediting, has become more and more complex since 1950. In part, this increase in complexity is no doubt due to several factors. These can be summarised as follows: (a) the size of the APA has grown to 51 divisions (Dewsbury, 1997), and has a current membership of approximately 108,000, with the majority of these members being professional psychologists (Sechrest, 1992), (b) an increase in the number of professional and political organisations both closely (Laughlin & Worley, 1991) and remotely (Newman, 1998) involved in the education and training of clinical psychologists, and (c) the number of training programmes in different professional areas of psychology. Hence, it is difficult to clearly ascertain the relationship amongst the various organisations involved in the education and training of clinical psychologists and the impact each has had, and continues to

have, on determining the nature and quality of clinical training. A brief review of some of the important machinery involved in the education and training of clinical psychologists will highlight this point.

The APA became active in the accrediting of clinical psychology training programmes in the late 1940s (Raimy, 1950). However, 17 years after the Boulder Conference there still appeared to be much confusion about university accreditation matters, as indicated by the following comment made by the APA's Education and Training Board in 1967:

> While these [accreditation] guidelines have been termed *criteria* or *standards* in prior documents, they were never intended as rigid yardsticks in the evaluation of training programs. Therefore, in the interests of clarity, we believe that a description of the general values guiding evaluation and an outline of the evaluation procedure should be made explicit (Education and Training Board, 1967, p. 153).

According to the Education and Training Board's (1967) outline of the accreditation process, each clinical programme wanting to be accredited would furnish the Education and Training Board with a detailed description of its programme, staff training and experience, the courses the programme offered, information about teaching, research training and the facilities available for each endeavour, student information, and practicum sites. If the request met with the approval of the Education and Training Board, a date was arranged for an official team to visit the university for a period of about two days (Education and Training Board, 1967). During the visit the official team engaged in a number of activities. These activities included interviews with relevant staff, placement supervisors and students, and attendance at classes, seminars and clinics. The visiting team then furnished its report on the university's programme to the APA's Committee on Evaluation which, in conjunction with members of the visiting team, arrived at a recommendation for action. This recommendation was then submitted to the Education and Training Board. The Education and Training Board made its own recommendations to the APA's Board of Directors, who made the final decision about the outcome of the university's request for accreditation (Education and Training Board, 1967). The official list of APA-approved programmes is published annually in the *American Psychologist,* along with the date the institution was accredited and the date for the next visit by the official team (e.g., "Accredited Doctoral Programs in Professional Psychology": 1997).

The Education and Training Board is now known as the Interim Board of Educational Affairs (Laughlin & Worley 1991), and the Committee on Evaluation is now called the Committee on

Accreditation ("Accredited Doctoral Programs in Professional Psychology": 1997). The Committee on Accreditation comprises representatives from doctoral training programmes, internship training programmes, and academic and practice groups (Laughlin & Worley, 1991). "Criteria for Accreditation" have now been replaced with "Guidelines and Principles for Accreditation of Programs in Professional Psychology" ("Accredited Doctoral Programs in Professional Psychology": 1997).

The move from 'criteria' to 'guiding principles' for accreditation suggests that a checklist approach to evaluating the merits of programmes in professional psychology has been explicitly replaced with a more abstract and flexible approach to accreditation (Laughlin & Worley, 1991). In the case of internship site accreditation, a more flexible approach to accreditation was evident by 1969. This purportedly reflected the belief that internship directors had collectively become better organised in relation to their role in the training of clinical psychologists (Laughlin & Worley, 1991). Six years after the Boulder Conference a listing procedure for APA-approved internship sites (excluding Veterans Administration sites) was put in place so that universities knew which sites had been accredited (Laughlin & Worley, 1991). Meanwhile, internship sites had been accepting students from both APA-accredited and non-accredited university training programmes (Laughlin & Worley, 1991). Moreover, although almost 50% of clinical psychology trainees entered internship programmes provided by the Veterans Administration (VA) in the mid 1950s, practical and political complications arose such that VA sites remained absent from official listings of accredited internship sites until after 1962, when the Education and Training Board resumed its VA evaluation efforts (Laughlin & Worley, 1991). Even by 1974, not all VA sites had received APA-accreditation (Laughlin & Worley, 1991). Officials of the VA declared that the VA would not continue to fund internship programmes that did not become accredited by the APA (Laughlin & Worley, 1991). By the early 1990s all VA internship programmes had received APA-accreditation (Laughlin & Worley, 1991).

In 1968, internship directors themselves began to play an active role in the co-ordination of internship accreditation through the formation of the Association of Psychology Internship Centres (APIC) (Laughlin & Worley, 1991; Belar, 1998). The APIC addressed itself to the problems that had been experienced with matching prospective interns to available internship programmes, and also compiled the first internship directory in the early 1970s (Laughlin & Worley, 1991). In 1987 the APIC played a major role in sponsoring and organising the first National Conference on Internship Training in Professional Psychology which drew interested

representatives from applied psychology programmes, internships agencies, the National Register, the American Association of State Psychology Boards, the National Institute of Mental Health and various Offices of the APA (Belar, 1998; Laughlin & Worley, 1991). It is clear from the recommendations emanating from this conference that, in the years since the Boulder Conference, many difficulties were still being worked through. For example, through emphasising that all internship training was to be conducted at APA-accredited internship sites, it is implied that many students were still entering internship programmes that had not gained accreditation. Similarly, by stressing the need for collaborative associations between clinical graduate programmes and internship programmes (Laughlin & Worley, 1991), it is implied that the relationship between the two training institutions was more remote than was desirable for an integrated training regime. However, not only did this conference attempt to redress these concerns, but it also recommended what it saw as two improvements to the Boulder Model training structure itself (Belar, 1998).

First, it was recommended that the dissertation be completed before embarking on the internship. Second, it was agreed that the internship be extended to two years, with the second year being a postdoctoral internship year [4] (Belar, 1998). However, because state-appointed licensing boards, rather than the discipline of psychology, set the criteria for what kinds of supervised clinical experiences are required for a psychologist to practice autonomously (Belar, 1998), conferees seemingly only reluctantly agreed at this time to keep part of the internship training at the doctoral level. Ten years after this conference, however, official wheels were set in motion to make the change to having the entire internship training occur at the postdoctoral level (Belar, 1998). Meanwhile, a new problem concerning internship training in clinical psychology has emerged in recent years. Namely, the number of students seeking internship admission is steadily outstripping the number of available internship positions (Belar, 1998).

Twenty years after the formation of the APIC, the Joint Council on Professional Education in Psychology (JCPEPP) was established (Laughlin & Worley, 1991). The Council comprises a heterogeneous collection of professional groups, including representatives from 8 APA divisions (Clinical, School, Counselling, Psychotherapy, Psychology of Women, Psychoanalysis, Family Psychology, and the Society for the Psychological Study of Lesbian and Gay Issues), the APIC, the National Council of Schools of Professional Psychology, the Council of University Directors

[4] By this time, the Boulder Model of training had already lengthened from the original 4 year programme to an average of 6 years (Belar, 1998).

of Clinical Psychology Programmes, and the Council of Counselling Psychology Programme Directors (Laughlin & Worley, 1991). The JCPEP's central concern is with professional practice education, including the internship (Laughlin & Worley, 1991). Among other recommendations, the JCPEP proposed in 1990 that "[t]he composition of the [APA Committee on Accreditation] must provide balanced representation of practitioners, educators, and public interest members" (Sheridan, Matarazzo & Nelson, 1995). Two years later this proposal became a reality and now the APA Committee on Accreditation has expanded to include representatives from each of these groups (Sheridan, et al., 1995). Sheridan, et al. (1995) state that the newly comprised Committee on Accreditation has already taken important steps aimed at improving the co-ordination of clinical training at all levels.

Another important organisation influencing the training of clinical psychologists is the American Association of State Psychology Boards (AASPB), which was formed eleven years after the Boulder Conference in 1961 (Laughlin & Worley, 1991). The AASPB developed a national psychology examination (Laughlin & Worley, 1991), the Examination for Professional Practice in Psychology, which is used by the AASPB in assessing individuals for licensure. The AASB also addresses legal issues, communication amongst the various examining boards, training and supervision standards, and is involved in the process of determining whether applicants are qualified to sit for licensing exams (Laughlin & Worley, 1991). Because the AASB initially experienced difficulties in performing the latter function, the National Register of Health Service Providers in Psychology (NRSPP), founded in the 1970s, formulated criteria and identified training programmes that were *designated* clinical psychology training programmes in order that state licensing boards would be better able to ascertain whether individuals seeking licensure as clinical psychologists had been trained within acceptable academic and professional training programmes (Laughlin & Worley, 1991). The NRSPP and the AASPB were jointly responsible in the 1980s for developing internship criteria and credentialing standards which are now applied to any clinical psychologist who wishes to be identified, registered and covered by federal legislation regarding eligibility for reimbursement for services rendered as a health service provider (Laughlin & Worley, 1991).

The United States Secretary of Education is the ultimate external control on accreditation matters. The Council on Postsecondary Accreditation periodically reviews the accreditation activities of various education and training institutions, including the APA. Ultimately, any accrediting body must satisfy the United States Secretary of Education that its accreditation

practices are worthy of the Secretary's endorsement. The APA's Committee on Accreditation is no exception to this requirement (Laughlin & Worley, 1991).

Despite what appears to be an evolutionary maturation in the development of the structures and processes that guide, support and shape training and education in clinical psychology since the time of the Boulder Conference, there are some who assert that standards of accreditation and licensing have been dropping since the mid 1960s. Sechrest (1992), for example, states that such standards are now "set at a level somewhat beneath the lowest common denominators so that only by accident does any program or person fail to qualify" (Sechrest, 1992, p.20).

Fox (1994) has called for the entire system of training and credentialing of professional psychologists to be reconstructed and for the APA to establish generic accreditation standards for professional psychology training programmes to replace the current practice of employing particular accreditation standards for each of psychology's applied professional programmes. He argues that this is what is required to overcome widespread public, political and professional confusion about who is a psychologist and what a psychologist does, or can, do. Fox (1994) also asserts that professional psychology should develop for itself an identity that is commensurate with health service provision, as opposed to being primarily known as a mental health discipline. As a considerable number of clinical programmes and clinical faculty were researching in the area of behavioural medicine/health psychology ten years ago (Sayette & Mayne, 1990), and many professional clinical psychologists graduating from Council of University Directors of Clinical Psychology programmes now enter employment in health care settings (Belar, 1998), the crafting of a health-oriented identity for clinical psychology seems to be in motion. As will be discussed shortly, however, sustained efforts have been made to rejuvenate clinical psychology's interest and commitment to mental health concerns (Wholford, Myers & Callan, 1995). Whatever the outcome of Fox's (1994) recommendations, the Council on Postsecondary Accreditation will have to be convinced that any recommended changes to the APA's accrediting policies and practices meet with the approval of the Secretary of Education.

Licensing of professional clinical psychologists

In order for any graduate of an applied psychology programme (e.g., educational psychology, clinical psychology) to become licensed as a practitioner in America and Canada, they must pass the licensing exam— the Examination for the Professional Practice in Psychology (EPPP). This

examination is compiled by the Association of State and Provincial Licensing Boards and the Professional Examination Service (Yu, et al., 1997).

The EPPP comprises 200 multi-choice items, the majority of which cover practice related areas (assessment, intervention, professional-legal-ethical issues, and application of knowledge to social systems) (Yu, et al., 1997). Only 17.5% of the EPPP items refer to research (Yu, et al., 1997). The vast majority of states and several Canadian provinces require that a minimum score on the EPPP be attained for a candidate to gain licensure (Yu, et al., 1997). However, these minimum scores may vary appreciably from a low of 125 (i.e., the candidate is permitted to get almost 38% of the answers wrong) to a high of 152 (i.e., the examinee is permitted to get almost a quarter of the answers wrong) (Yu, et al., 1997).

The variation in the scores required to pass the EPPP is due to the fact that some states base the pass criterion on the national distribution of EPPP scores, which itself varies over time. The pass criterion also varies across states that do not use the national distribution of EPPP scores to establish a cut-off score (Yu, et al, 1997). However, the majority of states impose a cut-off score of 140 (Yu, et al., 1997), which means that most candidates are permitted to get 30% of the items wrong, and still pass. Perhaps there is some truth to Sechrest's (1992) claim that licensing standards are effectively set at a level where it is difficult for a candidate to fail. Sechrest and Scott (1995) suggest that professional psychologists should re-sit the licensing exam on a periodic basis in order to ensure that their skills and knowledge base remain up to date. However, how well such a regime might meet this goal would surely depend on the particular EPPP pass criterion employed.

Sechrest (1992) also argues that, in fact, there are "*no* standards" (p.21) in the professional practice of clinical psychology. He argues that this is so because the discipline tacitly condones nonsensical clinical practices through its in-house and public silence in the face of such practices. Sechrest (1992) provides several examples to support this claim. One example involves the case of a psychologist who holds a PhD, a practice license and APA membership, but whose practice and authorship involves the use of hypnosis to assist people, who may have forgotten their experience, to recover buried memories of their abduction and abuse at the hands of extraterrestrials (Sechrest, 1992). It is likely that all professions can cite examples of poor or inappropriate behaviour by some of its members. What Sechrest (1992) is arguing, however, is that professional clinical psychology turns a blind eye to such behaviour, unless the behaviour is

emphatically unethical. Perhaps partly in response to the kinds of concerns raised by Sechrest (1992), clinical practice guidelines have since been established and published (Nathan, 2000). However, it is one thing to promulgate such guidelines, but the issue of whether they can or should be enforced is still the subject of debate (Nathan, 2000). For instance, some argue that the enforcement of practice guidelines, which are based on treatment manuals, casts the clinical psychologist in the role of technician and has the potential to stultify innovative, problem-solving approaches to clinical practice (e.g., Davison, 1998; Davison & Lazarus, 1994).

Social needs and clinical psychology

Boulder conferees recognised that the mental and health needs of society at one time in history would not necessarily be the same at another time in history (Raimy, 1950). Hence, conferees recommended that social mental health needs should be assessed on an ongoing basis such that the activities of researchers, clinical service providers and clinical training programmes would be appropriately co-ordinated and driven by such needs (Raimy, 1950).

Whether the observed diversity of education and training across clinical programmes (Sayette & Mayne, 1990) and areas being researched by clinical faculty bear a sensible relationship to relevant areas of social need is a particularly complex question to address. Some of these complexities are outlined below.

First, as far as classified disorders are concerned (e.g., anxiety disorders, affective disorders, substance disorders), areas of need can be partially ascertained in terms of the number of individuals who are affected by a particular disorder, through prevalence and incidence data, in conjunction with the personal and social costs exacted by the presence of these disorders. Second, prevalence data alone simply informs one about how widespread a problem is, yet some disorders may carry with them more debilitating symptoms and/or more serious outcomes than others. Third, although one would imagine a strong relationship to exist between prevalence data and disorder severity on the one hand, and research funding and national policies concerning mental health/health care on the other, the latter may determine what health related activities will be financially supported at any given time. For instance, under both the Reagan and Bush Administrations (1981-1992), the National Institute of Mental Health (NIMH) (which is responsible for ensuring that clinical training is commensurate with social needs [Fowler, 1995]) came close to having its clinical training budget completely withdrawn before Congress stepped in and allocated the NIMH a small training budget of three million dollars (Wohlford,

Callan & Myers, 1995). Fourth, although the need for research maybe strong in a particular domain where our knowledge base is slim (e.g., in the area of personality disorders), little research investment by scientists is likely to occur if they cannot see a way to get some purchase on the problem.

Given the complexities just discussed, one would expect that a commitment to the spirit of the Boulder Model by clinical psychology would involve the discipline's active participation in efforts to develop systems and mechanisms aimed at maximising the discipline's potential to be sensitive to societal needs. As will be discussed below, when one examines this issue, as *one* link in a complex health system, clinical psychology's activities appear to be congruent with this aspect of the Boulder Model.

In Chapter 5 of this thesis the use of research to inform the development of treatment programmes for clinically relevant problems was considered. It will be recalled that in the publications that were examined, about one third of the citations made by the authors served the function of demonstrating that a need for the treatment programme existed. While this observation reflects positively on individual members of the profession regarding assessment and responsiveness to mental health needs of some members of society, it does not speak to the issue of whether clinical psychology has an overarching, systematic approach to this issue.

Research in the areas of behavioural medicine and health psychology have risen to prominence within clinical psychology programmes (Sayette & Mayne, 1990; Belar, 1998). Presumably, this research focus is translated into a clinical curriculum that is similarly focused and explains why increasing numbers of graduates are equipped to enter employment in this area (Belar, 1998). More to the point, at least one factor behind clinical psychology's research and training emphasis on wellness involved the discipline's response to a series of reports, priorities and objectives that were published by the United States Surgeon General, the U.S., Department of Health and Human Services, and other groups, between 1979 and 1990 concerning the nation's health care crisis (Lorian, 1991; McGinnis, 1991).

By 1990 "special population targets" (McGinnis, 1991, p. 523) had been identified as a result of the reports mentioned above and specific objectives for these groups established (McGinnis, 1990). These target populations included poorer members of society, children/adolescents, older persons, ethnic minorities, and disabled individuals (McGinnis, 1991). In terms of the nation's

mental health, which was not entirely overlooked in the reports just mentioned, with the addition of two other target population groups - rural populations and persons with more than one disorder (in particular those with a serious mental illness and a substance abuse problem) (Arons & Goodwin, 1995) - the NIMH identified much the same underserved populations (Wohlford, Callan & Myers,1995). Just as it had done in the late 1940s, the NIMH in the early 1980s developed an affirmative action plan, 'Public-Academic Linkages for Clinical Training in Psychology', to mobilise, co-ordinate and implement clinical response efforts synergistically in three areas - research, clinical education and training (including internship training and postdoctoral education and training), and service provision (Wohlford, Callan & Myers,1995).

The project just mentioned bears all the hallmarks of a rationally orchestrated attempt to address the needs of those members of society who are most in need of mental health care. This enterprise involves political bodies, numerous organisations (including APA boards, divisional leaders and committees, and local service agencies), professional individuals (e.g., clinical psychologists working in the field and clinical programme directors), consumers of mental health care services and their families, time, patience, persistence, and financial resources. Furthermore, over a period of four years a number of focused conferences were held that (1) identified the need for enhanced linkages at various levels of the health system, (2) empirically assessed impediments to these linkages, (3) developed an action plan to minimise such barriers, (4) set in place feedback systems and communication mechanisms, (5) worked out a step-wise process for the implementation of the various recommendations that were made during these processes, and (6) developed evaluation systems to monitor the project's progress (Wohlford, et al., 1995).

Thus, it appears that clinical psychology is currently being called upon to respond to both the health needs and mental health needs of the nation. Furthermore, the discipline has clearly responded to these calls in terms of its present level of involvement in behavioural medicine and health psychology. At the same time, however, efforts are underway to promote and reinvigorate interest and commitment to specific populations affected by mental illnesses whom the NIMH identified as being underserved by the mental health care system, including clinical psychology.

One of the APA's responses to the challenge of meeting the mental health care needs of underserved populations has been to alter its accreditation guidelines to include the requirement

that clinical programmes give greater attention to cultural diversity. On some progress measures (e.g., the numbers of ethnically diverse clinical teaching and research personnel, trainees, APA members, and curriculum changes) gains have so far been only modest (Myers, 1995). On the other hand, the list of the top 20 research areas identified by Sayette and Mayne (1990) maps reasonably well onto the areas identified by the NIMH as requiring greater clinical emphasis.

Summary and discussion

In this chapter the focus has been on the implementation status of three of the four core mechanisms that Boulder conferees (Raimy, 1950) suggested would, if implemented, help to ensure that clinical psychology would be in a position to adapt to changes in science, technology, and social needs. The mechanisms specified included a core curriculum plus bounded diversity, clinical training that was broadly based followed by specialisation at the postdoctoral level, and issues relating to training policies, accreditation matters and the credentialing of clinical psychologists. The literature reviewed in this chapter suggests that most, but not all, of these features of the Boulder Model have been implemented.

There is a core curriculum that is shared by clinical psychologists and the wider discipline of psychology. Whether this has lead to the Boulder conferees' hopes of a shared sense identity amongst all psychologists remains to be determined. Second, the Boulder conferees' recommendation that education and training in clinical psychology remain broadly based, and specialisation postponed until after graduation, has also been implemented. This conclusion is further supported by the findings reported in Chapter 3 that spoke to the array of employment settings clinical psychologists are able to enter, and the number of roles and activities they collectively perform.

Constrained diversity across programmes has been implemented in a number of important areas. This conclusion is supported by (i) the number of differentially focused in-house clinics that are now a common among training institutions, (ii) noting that several of the same topic areas are researched by clinical faculty in different programmes, (iii) the differences and overlap noted across programmes in relation to courses that are rated as unnecessary, recommended or required, and (iv) the array of theoretical perspectives adopted by clinical faculty.

Recent attention to the issues of theoretical integration and the efficacy and effectiveness of different approaches to therapy for many clinical problems, indicates that the discipline is

currently attempting to implement a selection process. However, diversity in the education and training of clinical psychologists is lacking in two critical respects. Clinical programmes appear to teach an impoverished array of types of approaches to inquiry and narrowly focus on only a few statistical methods of data analysis. This issue is discussed further at the end of the present summary of conclusions.

The literature reviewed in this chapter has highlighted the fact that the discipline of clinical psychology has demonstrated a commitment to a process of evaluation and change in its history of programme accreditation. However, the pass criterion on the examination by which clinical graduates are assessed for their competence may vary appreciably. Hence, candidates may pass despite giving incorrect answers to a sizeable percentage of the exam's multi-choice items.

The last conclusion to be drawn is that clinical psychology has remained faithful to the spirit of the Boulder Model in that it has attempted to respond to changing mental health and health needs of society that have been identified by individuals and authoritative sources, such as the Surgeon General and the National Institute of Mental Health.

It was noted in the preceding conclusions that clinical programmes appear to teach a particualrly narrow array of approaches to inquiry and statistical methods of data analysis. Because the Boulder Model does not profess to turn out graduates whose research (or practice) education is complete, it can be argued that the onus rightly falls on the student to gain further training in a greater variety of approaches to inquiry and statistical methods of data analysis. This is always going to be true given the extensive nature of these topics and the fact that a general programme of study has to terminate at some point. However, programmes are responsible for appropriately updating their curricula in light of new developments. This is not to suggest that programmes should adopt an 'anything that is new goes' approach to programme development, nor is it to deny the difficulties involved in selecting and including different and additional courses into the curriculum. Critically, however, it is to suggest that the current research practices taught in psychology graduate programmes, evident throughout both the psychotherapy outcome literature (Dar, et al., 1994), and the general psychological research literature (Schmidt, 1996), might impede the detection of phenomena.

Schmidt (1996) reports that analyses of the psychological research literature show that the majority of published research in psychology neglects the issue of statistical power and

continues to rely on traditional statistical tests of significance to detect phenomena. However, he also argues that these traditional approaches systematically work against advancing our knowledge because they foster such a high rate of incorrect conclusions. Even if researchers gave greater attention to the issue of statistical power, Schmidt claims that knowledge gains would still be impeded because many studies would not be undertaken. This is because the nature of the research question typically changes from an initial attempt to answer a yes, or no, question (e.g., "Is cognitive-behavioural therapy effective for treating depression?"), through to questions of a more comparative nature as the research progresses (e.g., "Is cognitive-behavioural therapy more effective than interpersonal psychotherapy for treating depression?"). If the anticipated effect size associated with the second question is small, the required sample size will have to be large in order to have enough power to detect differences between the two treatments (Schmidt, 1996). Given that meeting the demand for an appropriately large sample may not always be feasible, or possible, researchers may conclude that the study is not worth pursuing (i.e., power would be too low to detect the effect size). In turn, studies that are never undertaken, or undertaken but not published because statistical power has been too low to detect a small effect size, are not available for meta-analyses. The upshot of this Schmidt reasons, is that phenomena will remain undetected (Schmidt, 1996).

It has been argued in this chapter that the evident theoretical diversity in clinical psychology is a positive feature of the discipline because it is a necessary precursor to advancing scientific knowledge. The role of theories is to explain the phenomena that have been detected . Furthermore, once scientific theories have been erected to explain the phenomena, theories themselves need to be appraised for their goodness. In addition, when a number of rival theories populate a domain, science typically seeks to identify which of the theories is the best theory. How these important tasks are approached by clinical science may depend on one's explicit or implicit understanding of the nature of science itself. Furthermore, one's implicit or explicit understanding of the nature of science will also influence professional clinical psychology in numerous ways. For instance, in a survey study by Simionato (1991) it was found that practitioners who disagreed with many of the tenets of the received view of science were less likely to read the empirical literature, or be influenced by the empirical literature.

Thus, it is appropriate to take a critical look at the three philosophies of science that are most relevant to psychology — empiricism, scientific realism and social constructionism—in order to gain a deeper appreciation of the philosophy of science that has traditionally informed clinical

science. Moreover, a brief excursion into the nature of science, as understood by each of the three philosophies just mentioned, will help to reveal how clinical science might set about strengthening its commitment to the Boulder Model ideal of building for itself a valid and reliable knowledge base that will benefit both clinical science and clinical practice. These tasks are the focus of the next chapter.

CHAPTER 8

Empiricism, scientific realism and social constructionism

Philosophies of Science

Philosophy of science deals with both epistemology and metaphysics (Papineau, 1996). Epistemology is concerned with the source, nature, methods and trustworthiness of knowledge claims. Metaphysics, and ontology, are concerned with what types of entities exist and what a correct epistemology would reveal about the nature of the world, including ourselves. Historically, formal logic and mathematics have been the tools used by logical empiricists in their efforts to "analyse the structure of scientific theories and to formulate theories of scientific explanation and confirmation" (Papineau, 1996, p.1). However, in the first decade after the Boulder Conference, several analyses of the history of science showed that an empiricist theory of science did not reflect an accurate picture of how scientists actually conducted their business (Papineau, 1996). As challenges to the "received view" of science began to mount, scepticism about the purported objectivity, rationality and assertions of the truth of scientific theories intensified (Papineau, 1996).

The extensively criticised philosophy of science which has dominated both general psychology and clinical psychology is empiricism (Greenwood, 1992; Keeley, et al., 1988; Manicas & Secord, 1983). Two major philosophies of science that currently present themselves as alternatives to empiricism are social constructionism and scientific realism. As Papineau (1996) points out, at the core of the realist position are two conjoint theses: (1) a mind-independent world exists outside of our cognising about it; (2) we can have knowledge of the world and this is represented in our best scientific theories, where 'best theory' is taken as the most explanatorily powerful theory (Psillos, 1999).

Social constructionism is a sceptical position which rejects one or both of realism's core claims (e.g., Burr, 1992; Gergen, 1985; Hare-Mustin & Marecek, 1988; Rosenau, 1992). In this chapter several principal theses associated with empiricism, scientific realism and social constructionism are outlined and critically discussed by first contrasting empiricism with scientific realism, and then social constructionism with scientific realism.

Empiricism and scientific realism

From an empiricist perspective, philosophy and science are considered to be fundamentally different types of undertaking. Empiricism holds that the intellectual relationship between philosophy and science is unidirectional with philosophy prescribing *a priori* canons for science in a downward hierarchical structure (Hooker, 1975, 1987). However, in reality, Hooker (1987) has forcefully argued that science and philosophy are entwined in a dynamic interplay with each informing and transforming the other. A salient contemporary example is cognitive science. Cognitive science has developed through the interplay of several disciplines (e.g., philosophy, cognitive psychology, developmental psychology, semantics, and computer science) (e.g., Brown, 1990; Pylyshyn, 1984). In turn, cognitive science participates in transforming those same contributing domains. Hence, philosophy does not stand apart from science and cannot be considered a distinctly different endeavour. Rather, philosophy is located within science. As Hooker (1975, 1987) points out, the implications that follow from accepting an interactionist view of science and philosophy are by no means trivial as will become clearer in the discussion of the following empiricist theses.

Empiricism adopts an instrumentalist account of scientific theories (Psillos, 1999). Instrumentalism maintains that the role of theory is to summarise and economically organise the amassed observational facts yielded by scientific inquiry within a formal logical framework to enable predictions to be made (Psillos, 1999). In addition, the stories such theories tell, are but 'fictions' because empiricism considers that the theoretical terms contained within the theory have instrumental value only (Papineau, 1996; Psillos, 1999). In other words, an empiricist perspective maintains an agnostic position with respect to the actual existence of theoretical terms. Realism, on the other hand, commits to the view that our best scientific theories are literally correct (Psillos, 1999). Furthermore, realism maintains that the distinction between observable and theoretical terms is ill-conceived (Psillos, 1999). Among other problems, the distinction between observables and unobservables fosters the incorrect assumption that our observational senses, primarily vision, provide a stronger epistemic warrant for theoretical confirmation and decision-making than do a raft of rational criteria for evaluating theory goodness (Psillos, 1999).

From a realist perspective, a purely instrumentalist interpretation of theories is inadequate (Psillos, 1999). Speaking to the latter, realism explicitly acknowledges our fallible human capacities as perceivers, cognisers, and theorisers (Hooker, 1987). It follows, therefore, that

'observational facts' cannot serve as the foundation for knowledge. Furthermore, observations are not independent of theory themselves. Therefore, realism maintains that they must be as open to revision as the theories that contain them. For the realist, research is undertaken to provide descriptive accounts of empirical regularities (phenomena) *and* to construct explanatory theories to explain the phenomena. Indeed, the realist reasons that phenomena and the causal mechanisms that give rise to them are hidden from our view (Haig, 1996; Manicas & Secord, 1983). Therefore, if we want knowledge and understanding of the world, and the ability to change it, we must be prepared to extend our referential reach to identify causal mechanisms that will explain the observed empirical regularities (i.e., phenomena) (e.g., affect dysregulation may explain several co-occurring clinical phenomena, such as self-deprecation, depression, relationship problems and the overuse of substances). Thus, existential depth makes an important contribution to a theory's explanatory power. A number of other factors are associated with the explanatory power of a theory. From a realist perspective, these factors are the criteria by which competing theories should be evaluated (Psillos, 1999).

Importantly, explanatory breadth, contributes to the explanatory power of a theory (Psillos, 1999; Thagard, 1989). A theory that accounts for a greater number of phenomena has greater explanatory power than an alternative theory that accounts for a fewer number of facts.

A second feature of explanatory power concerns the degree of coherence the theory has with other accepted scientific theories (Psillos, 1999). For example, a psychological theory that strongly hangs together with evolutionary theory (e.g., Wakefield's theory of mental disorder as harmful dysfunction [Wakefield, 1992]) has greater explanatory power, other things being equal, than an alternative view that only weakly coheres with evolutionary theory (Psillos, 1999).

It has also been argued that the concept of analogy has an important role to play in the internal strength of a theory's explanatory coherence, and, therefore, contributes to the explanatory power of the theory. This idea is explicated by Thagard (1989) who states that a theoretical system coheres if, for example, two explanatory propositions in a theoretical system are analogous to each other and the individual propositions that are explained by these explanatory propositions are also analogous to each other.

Conceptual economy, or simplicity, is another theoretical virtue prized by realism for the contribution it makes to the explanatory power of a theory (Thagard, 1989; 1992). This notion is

captured by the idea that a theory that makes fewer special assumptions should be preferred to an alternative theory that involves a greater number of assumptions. By reducing the number of assumptions that need to be accepted in order to explain the phenomena (e.g., social learning theory as compared to psychodynamic theory and their respective attempts to explain depression), the theory has greater unifying power compared to its competitors (Psillos, 1999).

On an empiricist view of science, theories tend to be isolated, small-scale efforts that lack integrated structures. Furthermore, when evaluating theories, empiricism gives relatively greater consideration to the empirical adequacy of the theory than other theoretical virtues (Psillos, 1999). These features of empiricism follow naturally from a mechanistic world-view. On this account, the world is understood as being naturally ordered according to the regularity view of causation (Delprato, 1995; White, 1993). This view of causation is discussed shortly. In addition, a mechanistic world-view maintains that the behaviour of all entities, including ourselves, can be explained through the application of simple mechanical principles. That is, external forces act on passive organisms to produce behaviour (Delprato, 1995; White, 1993). The constituent parts of the world, according to the mechanistic world-view, are discrete and fully determined by antecedent forces. Furthermore, the sum of the world's parts is taken to be no greater than the whole. Hence, a mechanistic world-view fosters the belief that no important information is lost when complex events and behaviours are analysed in terms of their basic elements.

In contrast to a mechanistic world-view, scientific realism is committed to a systems world-view. That is, the world is considered to be a stratified, systemic whole made up of complex, interacting composites, not all of which are observable (Harré, 1986; Manicas & Secord, 1983). Thus, scientific realism is committed to a generative view of causation, which will be discussed further shortly, and attempts to link together various behavioural claims made by a theory by appeal to underlying causal mechanism. The upshot of a commitment to a systems world-view is that scientific realism prizes global theories (Hooker, 1975), and, in evaluating the goodness of a theory, also attends to the systemic worth of the theory. The systemic value of explanatory theories is reflected by the theoretical virtues of breadth, order, internal and external coherence.

Empiricism provides an account of scientific method known as hypothetico-deductivism. On this account of scientific method, predictions are derived from the extant theory that are amenable to observational/experimental testing (Salmon, 1996). Hence, theories are largely

confirmed or refuted according to their predictive successes. This account of scientific method does not include in its purview matters pertaining to the initial generation of hypotheses, or attention to theory development, and the emphasis is squarely on theory testing (Salmon, 1996). Some of the many criticisms that have been brought to bear on the hypothetico-deductive account of scientific method are discussed below.

One problem associated with the hypothetico-deductive account of scientific method is that it cannot be known what a predictive success or failure actually amounts to. This is known as the Duhem-Quine problem, or the underdetermination of theory by data thesis (O'Donahue, 1989; Hooker, 1987; Leplin, 1984; Harré, 1986). Uncertainty about the meaning of a prediction success or failure results from several factors, including: (a) the fact that theories typically involve a variety of auxiliary hypotheses relating to operationalised theoretical terms (the Duhem-Qunie problem), (b) the extent to which the experimental conditions have achieved closure, and (c) the nature of the particular measuring devices that are required to secure observational claims.

In response to the problem of theories being underdetermined by data, a Lakatosian perspective (Chalmers, 1976; O'Donahue, 1989) suggests that, rather than take theories in isolation, it is more appropriate to appraise them as members of a series called a research programme. Roughly stated, this account suggests that a research programme comprises a hard core of irrefutable commitments and a protective belt of auxiliary hypotheses. On the Lakatosian view, when experiments result in anomalous findings, revisions are made to the supporting hypotheses, not the hard core of the research programme (Chalmers, 1976). Borrowing an example from O'Donahue (1989), a behavioural conditioning principle is the law of effect, which is part of the hard core of behaviourism. So, whenever a state of affairs presents itself that is contrary to what would be expected in accordance with the law of effect (e.g., an anomalous outcome following the implementation of a reinforcement contingency), the researcher (or scientist-practitioner) is directed toward alternative explanations involving auxiliary hypotheses, such as the possibility that the reinforcer has lost its potency. While realism endorses the demand that scientific theories must recognise the systemic character of science as partially portrayed by the Lakatosian view (Hooker, 1975), the notion of an irrefutable hard core is rejected. This is because the idea of a hard core is both inconsistent with our fallibilism as a species (Hooker, 1987), and with the history of science itself (Leplin, 1984; Hooker, 1987; Papineau, 1996).

A second problem to be illuminated by the underdetermination thesis is that undue emphasis on empirical adequacy for choosing between rival theories can be problematic (Hooker, 1987; Papineau, 1996; O'Donahue, 1989). In brief, theory one theory may contain reference to hidden entities, while another theory may contain only observational statements. However, it is possible for both theories to make equivalent observational predictions. Hence, no amount of observational data will permit a choice to be made between the two competing theories (Harré, 1986; Hooker, 1987; Leplin, 1984; Papineau, 1996).

Realism argues that the most fruitful strategy for advancing scientific knowledge is through theoretical pluralism and the critical interplay of theories (e.g., see Dixon, 1983; Royce, 1985). Scientific realism also convincingly argues that when deciding to accept one theory over another, giving primacy to empirical adequacy at the expense of other evaluative criteria, can lead researchers to accept a less promising theory (Thagard, 1989). For example, with help of his computer programme, ECHO, Thagard (1989) has shown that although theories with the most empirical support are frequently also the most explanatorily coherent theories, an argument from analogy may outweigh empirical considerations in cases where the observational evidence is comparatively weaker. Hence, the idea that prediction and scientific explanation are symmetrical notions, as empiricism maintains, is forcefully challenged (Thagard, 1989; Manicas & Secord, 1983).

Because the hypothetico-deductive account of scientific method stresses the primacy of theory testing, the process of hypothesis generation, or the context of discovery (Curd, 1980), is ignored (Chalmers, 1976). According to the Popperian view of the hypothetico-deductive method, hypothesis generation is described as non-logical, and does not need to be taken into account in a theory of scientific method (Chalmers, 1976). Thus, by ignoring the rationality of hypothesis generation, such as initial plausibility considerations, the number of hypotheses available for testing is potentially infinite.

Characteristically, empiricism does not accept the view that scientific talk of unobservable/theoretical entities requires an acceptance of their existence (Psillos, 1999). Empiricism has mounted several arguments in defence of this position (Psillos, 1999). One of these defences is operationism. According to operationism, theoretical terms obtain their meaning from specifying the operational procedures used to measure them (Haig, 1999). For

example, the theoretical term *depression* would mean a score in a particular range on the Beck Depression Inventory. From operationism, it follows, therefore, that there are no single concepts because each different operational procedure measures a different concept (Psillos, 1999). By contrast, realism suggests that a score on the Beck Depression Inventory in a particular range reflects one, or more, underlying causal mechanisms, such as a negative attribution style. Psillos (1999) points out that it makes little sense to attempt to validate constructs that one does not believe refer to entities.

Empiricism adopts an instance-statistics view of theory confirmation. This thesis claims that a theory receives a standard increment of support for every successful (statistically) confirming instance. Further, the degree of confirmation a theory gains is considered proportional to the number of observed positive instances (Greenwood, 1982). However, confirmatory gains actually diminish with each statistically confirming instance, with the greatest gain being made on the first instance (Howson & Urbach, 1989). Furthermore, a falsificationist approach to theory confirmation suggests that theories gain further support each time a rigorous effort is made to disconfirm them fails (Chalmers, 1976; Howson & Urbach, 1989). However, there still remains the problem of how to choose which unrefuted theory is the more correct theory (Howson & Urbach, 1989). In addition, a new-born theory is unlikely to be able withstand such strong tests and may thus be prematurely abandoned.

Along with the problem of what constitutes a scientific explanation (Glymour, 1984) a key concern for science is an acceptable account of causation (White, 1993). The empiricist view argues that an account of a cause is one that provides knowledge about an empirical regularity. On this essentially Humean account of causation, for a relation to count as causal, three conditions are typically required (Manicas & Secord, 1983). The first is temporal priority where the cause precedes the observed effect (e.g., the onset of a reinforcement contingency precedes the observed change in the respondent's behaviour). Second, there is the issue of covariation where it needs to be shown that an hypothesised, or observed, relationship between two variables (e.g., parenting practices and self-esteem in offspring) obtains above the level of chance. In psychological research this condition is often checked using techniques such as Pearson's product moment correlation (Hinkle, Wiersma & Jurs, 1994). The third condition for a relation to count as causal on an empiricist account is non-spuriousness. This requires ruling out the possibility that a third variable may have given rise to the observed correlation between two variables. Research methods, such as analysis of covariance (Hinkle, et al., 1994), are

thought to enable checks to be made regarding this condition. The contrasting realist view of causation is discussed below.

For empiricism, explanation involves the subsumption of events to be explained under an empirical law (Manicas & Secord, 1983; Harré, 1986; Secord, 1990). An empirical law captures the idea of universality (generalisability) when certain initial conditions (the 'all things being equal', or ceteris paribus clause) are met (Hospers, 1956; Manicas & Secord, 1983; Secord, 1990). Thus, empiricism takes explanation and prediction to be symmetrical because lawful assertions are intended to predict all future (relevant) cases (Hospers, 1956). Realism challenges this view of explanation and Thargard (1989) has shown that it is not always the case that the most empirically adequate theory is the most explanatorily coherent theory. Also, realism argues that descriptive theories do not provide information about what causes the empirical regularity to obtain. Moreover, empiricism's take on causation and scientific explanation stipulates that the observed regularity need not be one of necessity (Secord, 1990). However, the 'law' becomes tautological if no specification can be given of the initial conditions (Manicas & Secord, 1983). This may arise by invoking the 'all things being equal' clause whenever anomalous results obtain (Manicas & Secord, 1983).

By contrast, the realist perspective on causation (Harré, 1986; Hooker, 1987; Secord, 1990; Papineau, 1996; Glymour, 1984; Manicas & Secord, 1983) runs as follows: (a) the world as a system is a stratified whole made up of complex composites, not all constituents of which are observable, (b) it is in virtue of the inherent nature of complex composites, given certain conditions, that observable effects occur as a matter of necessity, (c) in any individual case observable behaviour may or may not lead to a correct ascription of underlying dispositions. This is because individuals differ in the degree to which they possess a variety of co-acting dispositions (natural variation), the degree to which the same conditions prevail over time, place and context, and the state of the individual. As Harré (1986) puts it, "A *Particular Being* has a *Tendency* which if *Released,* in a certain type of situation, is manifested in some observable *Action* but when *Blocked* has no observable effect. Adding the releasing and blocking condition introduces the basic element of agency into the causal story" (p. 284, original italics). In addition, some properties are liabilities rather than causal powers, where a liability refers to the capacity of an entity to undergo something (Harré & Madden, 1975, cited in White, 1993). For example, copper has the capacity to change its shape when beaten, which in turn results from its particular structure. Malleability itself is not a causal power but a liability.

Furthermore, any suggestion that a proper scientific explanation demands wholesale reductionism to the 'basic elements' of wholes, or a linear event ontology, is rejected on a realist account. The dynamic interplay between the causal properties of wholes and the (different) causal properties of parts means that "The powers of parts are explained by reference to the powers of the whole" (Harré, 1986, p.286). Thus, realism argues that the empiricist's over-emphasis on prediction as explanation must be rejected because "...the complexly related structures and systems of the world are constantly being reconfigured" (Manicas & Secord, 1983, p. 403).

An empiricist theory of science draws a sharp contrast between facts and values. Thus, science is considered to be value free because it is determined by objective considerations, namely, 'facts' and logic (Hooker, 1987). Realism rejects this view and argues that neither 'facts' nor values are 'given' to us on an a priori basis. Rather, we learn about these in the same way that we learn about everything else, including learning itself (Hooker, 1987). Indeed, both epistemic values (e.g., explanatory power, truth) and non-epistemic values (e.g., emotional responses, attitudes, pragmatics, political values) play a significant role in science and in turn participate in shaping science (Howard, 1985; Hooker, 1987; O'Donahue, 1989; Prilleltensky, 1989).

A further thesis of empiricism is the dichotomy between internal and external science where the latter is taken to be incidental to, rather than part of, science proper (Hooker, 1987). External science refers to issues of policy, peer review processes, the structure of professional groups and institutions. Internal science is concerned with cognitive aspects of science only such as its theories, methods and reasoning. As Hooker (1975; 1987) states, realism explicitly acknowledges the interwoven nature of these two dimensions of science. From an Hooker's realist point of view, "Institutions [especially epistemic ones] are the species' nervous system, and the cognitive capacities of the species are strongly influenced by the design of these institutions" (p.305). It is argued therefore, that an adequate theory of science must also critically examine the reciprocal relationship between these dimensions as (a) part of the evidential basis for characterising the rational content of science, and (b) as necessary for the critical development of efficient epistemic designs (Hooker, 1987).

Before critically examining the nature of social constructionism, it is worth briefly relating some of the points that have been discussed so far in connection with empiricism and scientific

realism to two important issues in clinical psychology that have emerged during the course of this thesis. In Chapter 4 the issue of construct validation was raised in relation to personality disorders. In the previous chapter (Chapter 7) it was noted that theory integration has been receiving increasing attention recently. As discussed below, neither of these tasks is likely to be particularly successful if they are approached from an empiricist perspective.

From a realist perspective, Haig (1999) suggests that the DSM's relatively recent flight from theory to descriptive definitions of mental disorders, and the concomitant emphasis on reliability (e.g., Garb, 1998), has been at the expense of better research and professional attention to the issue of construct validation. He argues that the predominant approaches to the validation of clinical theoretical constructs in psychology have, unfortunately, involved an over-reliance on the use of the hypothetico-deductive method and null hypothesis statistical significance testing (NHST), and a preoccupation with operational definitions. Given the force of the criticisms that have been levelled against these characteristics of an empiricist view of science, it is difficult to see how clinical psychology can make good on a commitment to the Boulder Model to build for itself a valid and reliable knowledge base unless Haig's (1999) challenge, "to revise our thinking about the methodology of construct validation and to incorporate the revisions into clinical psychological practice" (p. 64), is taken seriously. Specifically, Haig (1999) urges clinical psychology to (1) abandon operationism, (2) abandon hypothetico-deductivism and NHST as a theory testing device, (2) make greater utilisation of methodological triangulation strategies to detect and validate phenomena in research and in practice, (3) pay far greater attention to the business of theory construction and restrict the role of definitions to a communication device, not a form of theory, and (4) fully embrace explanatory reasoning in the form of abduction and inference to the best explanation. These two notions are spelled out shortly when social constructionism is critiqued.

Approaches to theory development is a particularly poignant issue facing clinical psychology, especially in light of recent attention given the matter of theoretical integration (Garfield, 1994). Kalmar and Sternberg (1988) have argued that an empiricist/segregative approach to theory development means that little attention by researchers is given to identifying and combining the best elements of complementary theories. Hence, unbeknown to scientists working in a shared domain within the segregative tradition the scientists may often be working on different aspects of the same phenomenon. Kalmar and Sternberg (1988) suggest that their 'theory knitting/integrative' strategy holds the promise of unifying seemingly competing theories at the

conceptual level. Briefly stated, the integrationist strategy insists that researchers attempt to identify the scope of mutually overlapping features of the relevant theories and the scope of each of those parts of the theories that are non-overlapping as they relate to the phenomenon in question. The theory knitting strategy also involves identifying the explanatory concepts employed by each theory and analysing both their differences and similarities. The next step is to 'knit' the theories together by incorporating new ideas about the phenomenon of interest. The new conceptual framework should be able to account for features of the relevant phenomenon that the previous theories could not.

Social constructionism and scientific realism

There are a variety of viewpoints under the banner of social constructionism (Gergen, 1985; Rosenau, 1992; Burr, 1995; Hare-Mustin & Marecek, 1988). Rosenau (1992) claims that the political thrust associated with social constructionism has come from the perceived failure of modern science to deliver solutions to pressing global and human problems. Others claim that science has been used as an instrument for fostering and perpetuating illusory categories and for justifying certain forms of repression (e.g., Hare-Mustin & Marecek, 1988). Social constructionism also appeals to various historical analyses of the nature of science to argue that these analyses have highlighted science's irrational nature. All strong versions of social constructionism adopt an anti-realist stance by rejecting any thesis that maintains that there is a reality 'out there' that is independent of our awareness or knowledge of it.

Gergen (1985) has brought a social constructionist perspective to psychology. He raises a number of arguments which are intended to convince the psychological community that social constructionism is the most viable metatheory for psychological science. Gergen's (1985) first argument runs as follows: As knowledge does not receive its warrant through observation and "...is not a product of induction, or the building and testing of general hypotheses (p. 266)...[then] the empirical sciences [are] without a viable logic of justification" (p. 267).

As will be evident from the preceding critique of empiricism, scientific realism accepts both Gergen's (1985) assertions. However, realism takes issue with and rejects Gergen's (1985) conclusion. From a realist perspective, a coherentist approach offers a credible theory of justification. Coherentism maintains that a belief is rationally justified in virtue of its coherence with other accepted beliefs (e.g., Haig, 2001; White, 1993). As Thagard (1989) points out, there are a variety of positions that may be adopted regarding the notion of coherence - deductive,

probabilistic, semantic and explanatory. For the realist, the notion of explanatory coherence is particularly compelling. An explanatory coherentist approach gives initial priority to data reports presupposing reliability has been checked, and incorporates several theoretical virtues associated with explanatory power. It also offers a procedural strategy for integrating these factors (Thagard, 1989). However, if the observational evidence becomes part of a theory that is able to explain phenomena, or data patterns, then the data reports receive further justification (Haig, 2001). Furthermore, unlike a foundationalist account of justification, this kind of knowledge justification is dynamic and a convincing depiction of how scientists rationally come to accept a mature theory (Thagard, 1989).

Gergen's (1985) objection to the hypothetico-deductive account of scientific method is also well taken by the realist. However, it does not follow that science is without a "viable logic of justification" (p. 265). From a scientific realist perspective, Haig (1996) has developed an alternative account of scientific method, abductive explanatory inferentialism, which is discussed in the following paragraphs.

Haig's abductive theory of scientific method knits together several important (rational) characteristics that are associated with the nature of systematic inquiry and the justification of knowledge claims (Haig, 1996). The features of systematic inquiry that comprise Haig's abductive theory of scientific method include the following: (a) abductive reasoning (e.g., Josephson & Josephsen, 1994, which originated with C. S. Peirce [Hookway, 2000]), (b) the constraints-composition theory of problems (Nickles, 1981), (c) the notion of inference to the best explanation (Psillos, 1999), and (d) a coherentist theory of justification (e.g., Thagard, 1989). Unlike hypothetico-deductivism and naïve inductivism, the abductive theory of scientific method presented by Haig (1996) offers a more complete account of scientific method and, hence, clear guidance to scientists and practitioners for addressing the numerous tasks that constitute the nature of inquiry. Haig's (1996) points are taken up further in the following paragraphs.

Abductive theory (Haig, 1996) adopts a 'constraint inclusion' account of problems whereby a problem comprises all the constraints on the solution, plus the demand that a solution be found (Nickles, 1981). Constraints will not only include empirical data, but also coherence and consistency constraints that arise from existing theory, and other methodological constraints. Realism views theories as putative problem solutions that hold the promise of providing a

solution to the problem of explaining puzzling data patterns. Furthermore, problems are typically not well structured and, therefore, do not simply present themselves for solution in the first instance. In addition, throughout the entire research process "[p]problems are generated, selected for consideration, developed and modified" (Haig, 1996, p. 283).

During the theory generation process it will not be known what data need explaining until they have been analysed (Haig, 2001). Exploratory data analysis followed by confirmatory data analysis, for example, checks for the presence of robust empirical regularities, or phenomena (Tukey, 1977). Once the data are analysed, an initial understanding of the phenomena can be satisfied by generating an appropriate theory to explain why the phenomena occur as they do. The type of inference involved here is abductive. Importantly abductive inference is ampliative, because it increases the content of the theory through inferring the existence of underlying causal mechanisms that plausibly explain the phenomena (Josephson & Josephsen, 1994). Hence, the second important feature of abductive inference is its explanatory nature. Abductive reasoning thus involves moving from presumed effects to underlying cause. In addition, the initial plausibility of the newly hypothesised causal mechanism is constrained (Haig, 1996) in the sense that plausibility judgements are made in light of extant relevant knowledge (Haig, 2000). A further consideration in judging the initial plausibility of the newly generated causal mechanism is its potential to stimulate further research (that is, its fertility).

During the theoretical development phase of inquiry, as in all phases of theory construction, constraints come to the fore and recede as the context of inquiry shifts. As Haig (1996) points out, the newly hatched causal theory is further developed by constructing suitable models (Harré, 1976) and reasoning from analogy from them to the generative causal mechanisms. Conceptual change is of primary importance during the theory development phase as the earlier hypothesised theoretical entities generated through abductive inference give way to more sophisticated and informative understandings (Haig, 2001; Kalmar & Sternberg, 1988).

Haig (1996) explains the important role models play in theory development. He states that theory development from a realist perspective is most profitably advanced through making use of iconic paramorph models. Because explanatory theories make reference to hidden causal mechanisms that we often know little about, the construction of paramorph models is essential (Haig, 1996). With this model "the source that is modeled from is quite different from the subject being modeled" (Haig, 1996, p. 287). The source of a model will be an already

understood phenomenon and we reason from analogy to the subject being modelled (Haig, 1996). Furthermore, "the iconic mode of representation frequently involves simulating reality in a concrete visualisable image [and] this is the appropriate mode for representing the bulk of our causal mechanisms (Haig, 1996, p. 287). Hence, on the realist account, theories are representations of the world that have been rationally constructed with concern for the natural world, and, therefore, do not simply amount to social constructions of reality, or the direct discovery of reality, as empiricism suggests (Haig, 2001).

Included in the abductive theory of scientific method (Haig, 1996) is a pattern of reasoning known as inference to the best explanation. This is captured by Thagard's (1989; 1992) theory of explanatory coherence where the rational appraisal of mature theories involves multiple criteria for establishing explanatory coherence. An analysis of inference to the best explanation shows that it reflects the actual reasoning processes used by many scientists in their theorising. It also occurs in the context of jury decision making, attribution theory, and medical diagnoses (Goldman, 1993; Josephson & Josephsen, 1994; Thagard, 1989).

In the closing comments of the previous chapter it was noted that one's explicit or implicit view of the nature of science influences practitioners' clinical conduct with respect to research consumption and research utilisation (Simionato, 1991). Importantly, one's view of science also influences how one approaches the task of case formulation. Recently Ward and Haig (1997) and Ward, Vertue and Haig (1999) have articulated how Haig's abductive theory of scientific method can be applied in clinical practice. The process of constructing a clinical case formulation is viewed as analogous to phenomena detection and theory construction in science. The overall process of clinical reasoning, as presented by the authors just mentioned, is briefly summarised here.

Briefly stated, the first clinical task is to gather data from several independent sources (e.g., the referral letter, interviews with the client, clinical observations, psychometric test outcomes, file notes, reports from relevant others). As it is phenomena, not data, that the scientist-practitioner seeks to explain, a careful examination of the data should yield patterns that point to the presence of phenomena (i.e., the client's clinically meaningful problems). It is during the next phase of case formulation that the scientist-practitioner becomes explicitly concerned with abductively generating several hypotheses that tentatively hold explanatory promise regarding the phenomena that have been detected. The initial plausibility of the tentatively posited

explanatory hypotheses is checked against several criteria, such as simplicity, congruity with the pertinent phenomena (consilience), consistency with background psychological theories (e.g., social learning theory), and consistency with metaphysical theories. Constraints are thus imposed that further help to structure and guide the case formulation process. The next task is to exploit knowledge from nomothetic sources (e.g., relevant theoretical and empirical knowledge) and clinical experience of clients with similar problems, to visually represent, or model, the emerging idiographic conceptualisation of the client's problems, and their interrelationships. From a realist perspective, and in accordance with inference to the best explanation, the adequacy of the case formulation will be evaluated against several criteria - explanatory breadth (i.e., the formulation explains more phenomena than an alternative theory might), analogy (i.e., the formulation is analogous to previous successful formulations with similar clients), simplicity (i.e., the data support the formulation without recourse to many special assumptions), fertility (i.e., the formulation points to an intervention), compatibility with nomothetically established models of psychological functioning, and usefulness (the proposed intervention has demonstrated its utility).

Gergen's (1985) second claim about social constructionism states that the terms in which the world are understood are social artifacts...[T]he process of understanding is not automatically driven by the forces of nature, but is the result of an active, co-operative enterprise of persons in relationship." (p.267). The realist has no difficulty in agreeing that in an important sense our theories, categories, and concepts are specific to our species and are in some sense social artifacts (Hooker, 1987). However, it is also the case that the world continually provides us with information placing certain constraints on how we theorise. Consequently, it would seem that our relationship to the world is causal rather than conceptual or logical (Hooker, 1987). It follows, therefore, that our relationship with the world is be bi-directional. Hence, our knowledge of the world cannot be solely due to social processes (Haig, 2001).

Despite the fact that some of our scientific theories have turned out to be false, realists mount several strong arguments defending the idea that science's best theories of the day (and in the future) were (and will be), nonetheless, approximately true (Psillos, 1999). For example, the approximate truth of theories that are now held to be false follows from a close examination of some salient historical examples in which important continuities in theory change have been identified (Psillos, 1999). In addition, because we may come to notice our errors, and to this extent 'see' the world differently and modify our theories accordingly, it does not follow that

multiple perspectives testify to the existence of multiple realities (Burr, 1995), or that the world is, in fact, different as a result (Devitt & Sterelny, 1987). More specifically, it is argued that historical evidence shows that although we may often err in our theorising about the nature of theoretical entities, this is not typically the case with respect to the structural behaviour of these entities (Worrall, 1996). To conclude, as Gergen (1985) does, that all our knowledge is dependent on the "...vicissitudes of social processes..." (p. 268) is therefore implausible.

A third claim Gergen (1985) makes on behalf of social constructionism is that "Descriptions and explanations of the world themselves constitute forms of social interaction. As such they are intertwined with the full range of other human activities." (Gergen, 1985, p. 268). Such a claim is not without merit, for science is indeed a human enterprise and therefore subject to social as well as theoretical determinations (Hooker, 1987). Social, institutional and cultural dimensions are intrinsic to science and need to be incorporated into an adequate theory of science (Hooker, 1987). Empiricism, it will be recalled, rejects the need to include the social dimension of science within its purview.

Gergen's (1985) fourth assertion states that " Social constructionism views discourse about the world not as a reflection or map of the world but as an artifact of communal interchange." (Gergen, 1985, p.266). Here Gergen (1985) is rejecting the notion of truth both as correspondence to reality and as a viable aim of science. Moreover, Gergen (1985) appears to consider both 'mapping' and 'mirroring' as equivalent relations.

If truth is seen as a relational concept, then Gergen (1985) is correct to challenge the idea that scientific theories literally mirror reality (Haig, 2001). Such a relation implies a degree of exactitude and perfection that is implausible given the accepted complexity of the world, the practical, biological and ethical constraints from which psychological scientists do their theorising, and the limitations we face as a species (i.e., the intrusion of cognitive biases, the limitations of our senses). However, a mapping relation is a different relation and taken by the realist to be plausibly attainable. Such a relation permits the loss of some information in a similar way to geographical maps that do not contain every feature, in every detail, of the land they are intended to portray (Hooker, 1987). In addition, a mapping relation explains how we get in touch with the world and understand the nature of error for this task presupposes the notion of correspondence (Hooker, 1987).

Traditional scientific aims such as prediction, control and explanation, and values such as objectivity and truth, are eschewed according to a social constructionist position. Rather, challenging the social and political order for the purposes of enriching and empowering people's lives is taken as the paramount aim of scientific endeavours. Indeed, Gergen (1985) suggests that scientific theories must be evaluated in terms of some moral criteria concerning "good and ill" (p. 273). It is by no means clear what such a claim amounts to. If, as constructionists claim, multiple perspectives testify to multiple realties (Burr, 1995), and each perspective is as worthy of adoption as any other, then how can it be simultaneously the case that there are important differences amongst competing perspectives that can be evaluated in terms of moral criteria? Such inconsistency clearly makes this position implausible.

Summary and discussion

The foregoing discussion of empiricism was undertaken in order to gain a better understanding of the nature of science that has traditionally been reflected in clinical science, and psychological science generally. Some important criticisms that have been levelled against this view of science have also been articulated. More to the point, as Keeley et al. (1988) note, psychology has been aware of the limitations of empiricism for some time. The limitations of both hypothetico-deductivism as a theory of scientific method, and its associated partner null hypothesis tests of statistical significance, have been strongly and clearly exposed for some time (e.g., Schmidt, 1996).

Social constructionism and scientific realism have also been critically discussed in this chapter. It has been argued that social constructionism is a less defensible theory of science compared with scientific realism. Furthermore, scientific realism offers a number of benefits for clinical psychology that are in greater accord with the spirit of the Boulder Model than the offerings of either empiricism or social constructionism. Some of these benefits are briefly outlined in the next few paragraphs.

The adoption of scientific realism by both clinical psychology and the parent discipline of psychology at the meta-level holds the promise of enhancing the connection between the two. In addition, by collapsing the distinction between internal and external science (e.g., institutional dimensions) scientific realism encompasses each within its cognitive frame of reference and, therefore, demands critical attention to them (Haig, 2001). Importantly, an abductive theory of scientific method offers explicit guidance for the practice of clinical science and the science of

clinical practice by spelling out the related activities of science and practice during the different phases of inquiry. Also, by highlighting the important distinction between data and phenomena, and the methods most appropriate for phenomena detection, a commitment to a realist perspective by clinical psychology would ensure that a greater number of clinically relevant phenomena are identified and, ultimately explained. In addition, a realist perspective on construct validation points the way forward for how clinical psychology should proceed to rejuvenate its commitment to the Boulder Model in terms of building a reliable and valid knowledge base. Furthermore, by adopting a systems world-view and a generative account of causality, scientific realism gives formal countenance to the importance of levels of explanation and the emergent properties (e.g., a sense of self) of the subject matter, which are both eminently appropriate perspectives for the science and practice of clinical psychology.

CHAPTER 9

Programme graduates: A critical appraisal

Two alternative models of training in clinical psychology have emerged: practitioner-oriented models and the clinical scientist model (Chapters 2 and 3). Practitioner-oriented programmes have been part of the clinical training landscape for many years, while the clinical scientist model is a more recent development. It was also noted in these two chapters that these alternatives to the scientist-practitioner model emphasise different features of the Boulder Model itself, rather than constitute entirely different training models. More specifically, all three training models involve attention to clinical science and practice, and include the requirement that trainees conduct research. Thus, the core difference among these training models lies is the *amount* of emphasis given to science and practice. Peculiar to the Boulder philosophy of training is the idea of giving science and practice, and their integration, an equal place of importance in the education and training of clinical psychologists. It will also be remembered that the raison d'être for the implementation of practitioner-oriented programmes was that a more practice focused training was likely to produce better practitioners because trainees would not have to divide their time between research and practice to the same extent as those trainees in Boulder style programmes. In addition, Vail conferees (Korman, 1974) considered that clinical science was mature enough to warrant such a split. The issues relating to matters of science that were covered in the preceding two chapters suggests that such a belief may have been even less well founded twenty seven years ago than might be thought today.

Although comparative empirical data are somewhat limited, the nature of the clinical graduates of each of the three training models—the Boulder Model, the professional school model, and the clinical scientist model— are outlined in this chapter. The implications of these findings are then discussed in the closing chapter of the thesis. In some respects the products of each of these three programme types appear quite similar. However, important differences have been identified with respect to how well candidates trained within the different programmes perform on the licensing examination.

According to one study by Snepp and Peterson (1988), on a number of performance dimensions related to practice, internship directors reported few differences between PsyD interns and

Boulder Model interns. However, Boulder Model students were described by supervisors as bringing a more systematic approach to clinical problems, while PsyDs were found to adopt a more intuitive approach.

Over time, there may be few differences between practitioner trained graduates and Boulder Model graduates in the way they are dispersed across a variety of practice settings, although very recent findings show some quite marked differences. Data reported in the early 1980s suggest that Boulder Model graduates and practitioner trained graduates were distributed in comparable percentages across a similar array of different employment settings (Peterson, Eaton, Levine & Snepp, 1982). However, recent data provided by Cherry et al. (2000) indicate that 48% of novice graduates from practitioner-oriented programmes entered one of two employment categories - community mental health centres (25%) and the category designated 'other' (23%). On the other hand, Gaddy, Charlot-Swillley, Nelson and Reich (1995) found comparable percentages for both PhD clinical graduates and PsyD graduates initially employed by community mental health centres and in unspecified settings.

Two studies report that fewer practitioner-trained novices relative to Boulder trained graduates extend their training in the form of postdoctoral residencies (Cherry, et al., 2000; Gaddy et al., 1995). This is also the case regarding reported percentages of clinical PsyD graduates and PhD graduates employed in medical centres (Gaddy, et al., 1995; Peterson, et al., 1982), although most recent data indicate that fewer practitioner trained graduates (12%) relative to Boulder Model graduates (19%) are initially employed in these settings (Cherry, et al., 2000).

As might be expected given the greater emphasis on practice in practitioner-oriented programmes, studies have shown that lower numbers of practitioner trained graduates enter employment in academic settings as compared with Boulder Model graduates (Cherry, et al., 2000; Gaddy, et al., 1995; Peterson, et al., 1982). Over time, comparable percentages of graduates from both types of training programmes have also been found to enter careers in private practice, hospital settings, health management organisations, schools, and university counselling centres (Cherry, et al., 2000; Gaddy, et al., 1995; Peterson, et al., 1982).

Cherry, et al. (2000) also examined the employment distribution of graduates from clinical scientist programmes. Not surprisingly, academic employment settings captured the greatest percentage (29%) of these graduates. Private practice settings, hospitals, health management

organisations, and school settings, each attracted percentages of clinical scientist graduates that were comparable with graduates from the other two programmes. In addition, More Boulder Model graduates (15%) than clinical scientist graduates (7%) were found to enter work in community mental health centres, and slightly fewer clinical science graduates relative to Boulder Model graduates took up a postdoctoral residency.

Overall, the most important difference between the three groups of clinical psychologists in terms of the way they are distributed pertains to the proportion of graduates who enter academic settings. More clinical scientists enter the academy relative to Boulder Model graduates, and more Boulder Model graduates enter employment in these settings than do practitioner trained psychologists. As far as practice settings are concerned, graduates from all three programme types tend to disperse across a comparable array of settings in similar percentages over time. However, a sizeable number of practitioner trained psychologists currently tend to be attracted to undifferentiated settings as well as community mental health centres.

Importantly, Boulder Model graduates have been found to spend significantly more of their work time per week engaged in research than do practitioner trained clinicians, and both groups have been found to spend a comparable amount of time engaged in the delivery of clinical services (Cherry, et al., 2000; Peterson, et al., 1982). By contrast, practitioner trained clinical graduates have been found to spend a significantly greater part of their work week involved in other forms of applied psychology, such as "industrial-organizational psychology, personnel selection or assessment, systems or equipment design, organizational consultation, and analysis or training" (Cherry, et al., 2000, p. 563). Compared to both practitioner trained graduates and Boulder Model graduates, clinical scientist graduates spend significantly less time per week involved in service delivery and significantly more time engaged in research (Cherry, et al., 2000). However, these findings are based on the total number of clinical scientist graduates who participated in the study. Because a much larger number of these participants were employed in academic settings relative to the other two groups, it is unclear to what extent this may accurately reflect how clinical scientist graduates working in non-academic settings divide their time. To summarise; differences are evident between Boulder Model graduates, clinical scientist graduates and practitioner trained graduates in terms of the amount of time per week spent involved in research, service provision, and other forms of applied psychology.

If professional schools were better at producing clinicians than Boulder Model programmes, we would expect to see some evidence of this, such as superior scores on the licensing examination. However, candidates seeking licensure who have trained within the professional school model do not outperform their Boulder Model counterparts on the most widely used test of clinical competence, the Examination for Professional Practice in Psychology (EPPP). Yu et al. (1997) secured scores obtained by clinical graduates over a 7 period (1988-1995) on the licensing exam, the Examination for Professional Practice in Psychology (EPPP). EPPP scores from the programmes that featured during those years and which also featured in the APA's graduate guidebook covering the year 1991-1992, were used to analyse relationships between the programmes' mean EPPP and a number of programme characteristics.

Particular programme means ranged from a low of 128.60 (SD = 15.10, N = 243) to a high of 165.70 (SD = 8.90, N = 44), with the mean EPPP for all means equal to 155.02 (SD = 7.44). However, the vast majority of programmes (95%) produced a mean EPPP of 140 or more. Because the pass criterion in most states and provinces on the EPPP is typically 140 (or sometimes less), the majority of programmes are producing graduates who minimally qualify for licensure (Yu et al., 1997). However, Boulder trained graduates generally do better on the EPPP than their practitioner trained counterparts. Informatively, Yu et al. (1997) report that Boulder Model programmes "produced higher scores than professional schools (unsigned r = .51) and Ph.D programmes produced higher scores than Psy.D programs (unsigned r = .49)" (p. 348).

It should be remembered that only 17.5% of the EPPP items refer to research matters (Yu, et al., 1997). Thus, the examination should favour those whose training has been more practice focused. The data reported by Yu et al. (1997) show that this is not the case. Of course, if professionally trained candidates were to gain full marks on all the practice related questions (n = 165) and no marks on the research questions (n = 35), their scores could feasibly turn out to be comparable to Boulder Model candidates if this group got all the research questions correct (n = 35) and, say, 80% of the practice questions correct (n = 132). However, given that candidates scores from professional school programmes are, overall, less than Boulder candidates', it is hard to see how this could be so. Thus, the research training experiences gained by students in Boulder style programmes does not appear to dilute training for practice (Meltzoff, 1984; Raimy, 1950), at least when indexed against EPPPs. Moreover, professional schools seem to have failed in one of their most fundamental objectives because, despite a greater emphasis on

practice, their graduates generally do not outperform those who have been trained for research and practice.

To this author's knowledge there are no published studies that have attempted to specifically assess the extent to which clinical practitioners trained within practitioner-oriented programmes consume or utilise research. However, there are data that permit some reasoned speculations to be made about this matter. For instance, more clinical faculty in practitioner-oriented programmes currently adhere to a psychodynamic theoretical perspective (Mayne, et al., 1994; Norcorss, et al, 1998). Not surprisingly, students training within these programmes are also more attracted to this theoretical perspective (Chambers, et al., 1993). Importantly, a psychodynamic theoretical orientation has been related to lower research utilisation by clinical practitioners as compared with a cognitive-behavioural orientation (Morrow-Bradley & Elliot, 1986). Similarly, psychodynamically oriented practitioners report being influenced less by research than clinicians who prefer a behavioural perspective (Morrow-Bradley & Elliot, 1986).

An intuitive approach to clinical practice has also been associated with a psychodynamic perspective (Chambers, et al., 1993), which is consistent with internship supervisors' observations that PsyD interns rely more on their intuition than Boulder Model interns (Snepp & Peterson, 1988). Furthermore, Chambers, et al. (1993) found that on a test of research knowledge, students holding a psychodynamic perspective performed more poorly than their behaviourally oriented counterparts. Indeed, the theoretical orientation of students' has been found to be as strong a predictor of their interest in research as the type of degree offered by the programme (Chambers, et al., 1993).

Professionally trained clinical psychologists also contribute considerably less to the profession in the form of publications than do their Boulder Model counterparts. For example, Hershey, Kopplin and Cornell (1991) surveyed practicing PsyD clinicians and compared their publication activities with data relating to their PhD counterparts in Division 12 of the APA. The vast majority of Division 12 members had published at least one article or paper and had presented at least one professional paper. Only 34% of the PsyDs had published at least once and only 40% had presented a paper at a professional gathering. Similarly, for those PsyD clinicians who had published an article or a paper, the average number of publications was just over three times lower than PhD clinical psychologists. The average number of professional presentations that had been given by the PsyD respondents who had engaged in this activity was half that of the

PhDs who had presented a professional paper. In addition, for the 76% of participants who stated that they had conducted at least one workshop, an average of 19 such sessions were said to be conducted (Hershey, et al., 1991). An earlier study looking at the publication activities of graduates from one practitioner-oriented programme found that 99% of the sample of had not published anything at all since graduation (Jones, 1985). On the other hand, the few respondents who had published had a very respectable publication record of 9 books, 24 book chapters, and 139 refereed journal articles (Jones, 1985).

In this chapter some similarities and differences among the clinical graduates produced by the three models of clinical education and training have been identified. It was argued in Chapter 3 that the Boulder Model successfully trains clinical students for a career in research, practice, or both. Although there is a dearth of comparative studies available, the data available indicate that practitioner-oriented programmes do indeed produce graduates whose major interest is practice regardless of the fact the majority of such programmes have a research requirement.

The data reviewed in this chapter also indicate that on the licensing examination, graduates from professional schools tend to perform more poorly than their PhD counterparts. However, it is not entirely clear why this is so. Once they enter practice, there is some question over the extent to which professionally trained clinical practitioners are likely to remain in contact with the scientific literature as an important source of guidance. But, there is no empirical research that has addressed this issue.

In addition, professionally trained clinical psychologists appear to spend more of their work time engaged in other forms of applied psychology than on clinically focused work. Furthermore, the professional contributions made by this group of clinicians generally appears limited to the conduct of workshops. In addition, recent data show that the range of employment settings professionally trained clinicians are presently attracted to is more restricted than was the case in the past.

In the concluding chapter of this thesis the implications for clinical psychology of continuing to train members of the discipline in each of the three training models are explored. These implications are presented following a summary of the findings that have emerged concerning the overall implementation status of the Boulder Model.

CHAPTER 10

Summary of results, future scenarios and implications for clinical psychology

In the preceding chapters of this thesis evidence pertaining to many features of the Boulder Model was reviewed in order to gain greater clarity about its current implementation status. In this final chapter the central findings of this thesis are summarised. The summary of results is followed by two possible future clinical training scenarios and a discussion of their implications for clinical psychology. In light of the thesis findings and the constructed scenario, some recommendations are made about how clinical psychology could proceed to reinvigorate its commitment to the spirit of the Boulder Conference ideals.

Summary of results

As an education and training model, the Boulder framework has been shown to successfully educate and train three related products, although most graduates undertake a career in practice. This conclusion has been drawn on the basis of findings indicating that graduates trained within the Boulder philosophy are capable of gaining employment in academic institutions, where research and clinical acumen are now both conditions of employment, and in a wide variety of different practice settings. Moreover, Boulder programmes are producing graduates who tend to perform better on the examination for professional practice than those who have been trained within professional schools. Hence, Boulder programmes are doing more than providing a minimally adequate training for practice and the shared focus on research does not appear to dilute training for practice.

Furthermore, the Boulder Model has successfully created a disciplinary field that is characterised by its joint commitment to research and practice. Collectively, clinical practitioners manifest their scientist identity in a number of ways and, individually, to varying extents. This conclusion is supported by the following lines of evidence: (a) some of practitioners' work time is regularly devoted to research, (b) the vast majority of professional clinical psychologists have published at least once, or more frequently, (c) most practitioners engage in research-related activities that may not result in publications, such as in-house research presentations, and (c) the proportion of clinically trained individuals who make the largest contribution to the clinical

literature is commensurate with the proportions reported for psychological science and other scientific disciplines.

Contrary to prevailing opinions, most practitioners appear to remain in close contact with the clinical research base. This conclusion is supported by the fact that the majority of practitioners regularly read research literature and report attending research related gatherings. Although a minority of practitioners report reading no research literature, the data cannot tell us whether this minority are the same individuals who report attending more than the average number of research gatherings. Furthermore, practitioners are not naïve consumers of the research literature, but critical consumers. There is consistency between clinicians' criticisms of the literature and those made by independent evaluators.

Several issues were discussed in relation to practitioners' use of research findings for informing practice. Criticisms of practitioners' low use of the research have typically been based on the least realistic understanding of this notion, instrumental research utilisation. The conclusion drawn in this thesis is that clinicians' ratings and rankings of the usefulness of research for guiding practice, although not hugely informative, are commensurate with the more realistic understanding of research utilisation, research consideration. In addition, novel evidence presented in this thesis indicates good use is made of the research literature to inform the development of treatment programmes. Furthermore, when one considers the important role clinical experience plays in the process of case formulation from a scientific realist perspective, the fact that clinicians report valuing this source of information cannot continue to be construed as evidence of unscientific behaviour. Similarly, much has been made of the fact that practitioners value discussions with colleagues as a source of guidance in their clinical work. However, research in clinical judgement suggests that this is an appropriate strategy that may help reduce biases in clinical reasoning.

A core curriculum has been maintained which stands as evidence for the presence of some degree of uniformity in the education and training of clinical psychologists. Furthermore, this core curriculum overlaps with the that of general psychology. Clinical education and training has also remained largely broadly based as Boulder conferees recommended. Consistent with Boulder conferees' expectations is the fact that more specialised training for practice has been

restricted to the postdoctoral level and accreditation standards have now been developed for sites offering postdoctoral residencies.

Quality control systems and procedures have also been established and modified in the forms of programme accreditation, internship site accreditation, the establishment of licensing boards and the development of a national examination assessing an individual's competency to practice. Because programmes may be provisionally accredited, fully accredited and lose their accreditation status, it can be inferred that the accreditation system entails a feedback loop. By and large, clinical programme directors state that they are satisfied with the integrity of this process (Skinner, Berry & Jackson, 1994).

This thesis has also presented evidence for the presence of diversity within clinical psychology in the following main areas: (1) courses recommended by clinical training programmes, (2) psychological theories, (3) areas of research conducted by clinical faculty and trainees, and (4) approaches to treatment. However, the science curriculum of graduate psychology programmes, particularly in the areas of statistical methods of data analysis and types of approaches to inquiry, appears to be very limited and predominantly associated with an ongoing commitment to a heavily criticised empiricist philosophy of science.

Structures and processes have been established so that clinical psychology is well positioned to address changing mental health and health needs of the society it serves. This claim is supported by the recent literature that reveals a concerted, orchestrated effort is being made facilitate a co-ordinated effort to adapt to changes in society at the levels of research, training institutions and service provision. A process of evaluating progress was also evident and these efforts have so far meet with partial success.

Positioning the field

One cannot help but be impressed with the careful consideration Boulder conferees gave to so many issues and the extensive scope of the Boulder Model. Overall, however, Boulder conferees hoped to achieve two primary goals: first, to establish a discipline that was characterised by both its commitment to clinically relevant research and a socially valuable, science valuing profession; second, to position the discipline in such a way that it would adapt to

future changes in science, technology and society. Thus, we can ask how well these two goals have been met.

As pointed out at the beginning of this chapter, the majority of the Boulder Model's objectives seem to have been implemented. The Boulder Model does produce the kinds of graduates it is supposed to produce, research informs practice, practitioners have been found to contribute to the body of clinical literature to an appropriate extent, licensing requirements and bodies have been established, accreditation systems, guidelines and processes continue to be modified, and there is uniformity in the form of a core curriculum. The extent to which practice informs research is not entirely clear from the literature that has been reviewed in this thesis.

A programme of diversity within clinical psychology is evident in a number of areas. In addition, some of this diversity, such as areas researched by clinical faculty, has been found to be sensibly bounded. Although Boulder conferees did not recommend a programme of diversity in relation to clinical education and training models, two alternative models have also been implemented and contribute to educational diversity in clinical psychology. However, diversity does not result in adaptation unless there is also a commitment to a process of evaluation.

Boulder conferees correctly believed that the feedback provided through an evaluation process would enable the discipline to modify, improve and select the best education and training methods, the best psychological theories, the most appropriate research designs and methods of data analysis, the best treatments, the most promising psychometric tests, and identify changing mental health and health needs of society.

The discipline has recently commenced the task of attempting to develop its theoretical knowledge base in the form of the integrationist movement. In addition, from the array of different therapies that have been developed over the years, recent efforts have identified those treatments that are most efficacious. Furthermore, a process of knowledge dissemination has been instigated in the hope that this information will be incorporated into training programmes and clinical practice. Also, because findings from efficacy studies and effectiveness studies are not entirely compatible, a new research agenda has been identified. In addition, empirically supported assessments have recently been published. Finally, studies are just starting to appear in the literature comparing the three clinical training models.

The evaluative activities listed immediately above are to be applauded. Arguably, clinical psychology has enjoyed its diversity but has not shown itself to be proactive and committed to a process of evaluation in some important areas.

There seems to be a certain amount of shyness toward evaluation research in some sectors of clinical psychology. For example, the driving force behind efforts to evaluate and disseminate knowledge pertaining to empirically supported assessments seems to have been initiated more by the fear of losing financial reimbursement for these services than a disciplinary desire to find out what is most effective (Kubiszyn et al., 2000).

Similarly, in 1993, the then president of Division 12 (Clinical Psychology), Martin Seligman, initiated a research project aimed at identifying the most efficacious psychosocial and psychopharmacological treatments for the major disorders listed in the DSM (Seligman, 1998). However, as the following quote indicates, the publication of the findings from this research met with some strong resistance within the APA:

> When it became known that this volume was in the offing, it was deemed so controversial and so potentially destructive to some constituencies within APA that grave doubts were expressed about its publication as an APA document. The worry was that if this were an "official" document of Division 12, it might imply APA endorsement of its contents; this raised the spectre that this book would never find its way into print. That it now appears is not only a major service to mental health practitioners and their patients, but it is also testimony to the doggedness, even the courage, of its authors, editors, and supporters(Seligman, 1998, p. v).

Seligman (1998) goes on to reproduce in full the APA's legal disclaimers and caveats which were developed to ensure that the APA and its divisions could not be seen to "recommend "treatments of choice," establish standards or guidelines for "care" or provide advice on the efficacy of the therapies listed (p. vii)". The APA's stance on this matter lends credence to Sechrest's (1992) claim that the body most representative of professional practice in clinical psychology is an unwilling party in attempts to enforce rigorous standards of practice. As we will see shortly, the APA currently holds a similar position with respect to training programmes themselves.

One gets the impression that clinical psychology has been reluctant to undertake of its own accord comparative studies of the effectiveness of the different clinical training models. For example, the rationale behind some comparative studies of clinical programmes reviewed in this thesis was not to inform the discipline of how well its clinical training models were performing,

but to better inform prospective students of the differences between applied psychology graduate programmes (eg., Norcross et al., 1998; Mayne, et al., 1994). Similarly, the study of outcomes of accredited programmes in recent years seems also to have been prompted by calls from the Council on Postsecondary Accreditation for greater accountability by educational institutions (e.g., Gaddy, et al., 1995). In addition, if the discipline of clinical psychology was seriously committed to finding out how well its clinical training models were performing, one would expect to see a sizeable body of comparative literature on the matter. This is not the case. For instance, only two surveys have been published that speak to the career experiences of PsyD graduates (e.g., Peterson, et al., 1982; Hershey, et al., 1991).

Prior to the appearance of a few very recently published comparative studies (Cherry, et al., 2000; Norcross, et al., 1998; Yu, et al., 1997), the APA Committee on Accreditation had already pronounced that "there is no one 'correct' philosophy, model, or method of doctoral training for professional psychological practice: rather there are multiple valid ones" (Committee on Accreditation, 1996, cited in Cherry, et al., 2000). Interestingly, the Committee's position on this matter is remarkably commensurate with the social constructionist thesis that asserts multiple perspectives testify to multiple realities and, therefore, each perspective is as worthy of adoption as any other.

It was pointed out in Chapters 7 and 8 of this thesis that progress in clinical science has also been impeded. Contrary to Boulder conferees' expectations, clinical psychology does not appear to have embraced a commitment to a teaching a diversity of statistical methods of data analysis or an appropriate array of different approaches to inquiry. Furthermore, despite sustained criticism, an empiricist philosophy of science has dominated psychological science, and, as far as can be ascertained, clinical science as well.

In sum, the Boulder Model has largely been implemented, albeit with two significant exceptions. This positive conclusion is contrary to what seems to be popular wisdom within the profession.

Future clinical training scenarios

One of the consequences of the widespread misperception of the Boulder Model's implementation status is a loss of confidence in it as a training model. This has been seen in the implementation of two alternative training models: the professional school model of training and its associated professional degree, and the clinical scientist model. The loss of confidence in

the Boulder framework is also seen more recently in the statement quoted from the APA Committee on Accreditation.

In this section, a brief summary of the products associated with the three training models is provided and consideration is given to the question of which training model, or combination of training models, would serve the discipline well, or even better, than the dual focused Boulder Model.

The three models that underly the current education and training of clinical psychologists are dissimilar in terms of the clinical career tracks for which they prepare their students. Within a single framework the Boulder Model prepares students for either a career in practice-based clinical science, scientific clinical practice, or both. The professional school model prepares its products for science-based clinical practice and the clinical scientist model prepares students for practice-based clinical research (Cherry et al., 2000).

In so far as the limited data permit stable conclusions to be drawn, it has been found that products of the professional school model of training have dispersed across a similar range of practice settings in comparable numbers as Boulder Model graduates. However, current data indicate that almost half of these graduates enter employment in community mental health centres or unspecified settings (Cherry, et al., 2000).

The majority of clinical scientist graduates also enter practice settings and a variety of them (Cherry, et al., 2000). A sizeable minority also gain employment in universities (Cherry, et al., 2000). It is not clear whether the percentage of Boulder Model graduates who enter employment in universities is comparable to that of clinical scientists. For instance, an older study by Garfield and Kurtz (1976) found the same percentage of Boulder graduates employed in universities as the percentage of clinical scientists in the recent study by Cherry et al. (2000). On the other hand, the number of Boulder graduates currently entering university settings are much lower than those reported by Garfield and Kurtz (1976) (Cherry, et al., 2000). Differences in these findings could be due to a decline in the numbers of Boulder graduates entering universities, or simply reflect natural variation over time.

Graduates seeking licensure who have trained within professional schools generally perform less well on the licensing exam than those who have obtained the PhD within a university setting. In

addition, recent data show that appreciably fewer professionally trained clinical psychologists are likely to formally improve their clinical skills by taking on further education in the form of a postdoctoral residency.

Practitioner trained graduates do not appear to deliver more clinical services compared with Boulder trained graduates (Cherry, et al., 2000) and prefer an intuitive approach to clinical practice (Snepp & Peterson, 1988). Recent data indicate that at least some of these individuals may be moving away from clinical work in favour of industrial and organisational work (Cherry, et al., 2000). Graduates from clinical scientist programmes do not spend as much time delivering clinical services as do Boulder Model graduates, or professional school model graduates (Cherry, et al., 2000). Boulder Model graduates prefer a more systematic approach to clinical work (Snepp & Peterson, 1988).

No data are available that speak to the consumption or utilisation of research amongst practitioners who have been professionally trained, or those trained in the clinical scientist model. However, it was reasoned in the preceding chapter that there is little reason to be optimistic about the likelihood that professionally trained clinicians will do as well, or better, in these respects than Boulder Model graduates. It seems highly likely that clinical scientist graduates who enter practice settings will do as well, or better, than Boulder Model graduates in these respects because practice-based research is the primary focus of the training programme.

Most Boulder Model graduates have been found to contribute to the clinical literature and, commensurate with the status quo in general psychological science and other sciences, a small percentage contribute a great deal to the literature. With the exception of one 16 year old survey by Jones (1985), professionally trained clinical psychologists do not tend to contribute to the clinical knowledge base through publications, or professional presentations. Most professionally trained graduates conduct workshops, however. During their training, more clinical scientists than Boulder Model trainees are involved in research, publishing and the authorship of professional papers (Cherry, et al. 2000). Zachar and Leong (2000) provide empirical data indicating that different proclivities and clinically relevant behaviours remain stable over time. Thus, it is not unreasonable to suggest that clinical scientists who enter practice setting will continue these activities.

Few differences appear to exist between the three groups in terms of affiliation with a professional organisation, although only a small number of professionally trained clinical psychologists are currently members of the APA (Rice, 1997).

Based on the information outlined above, consideration is now given to future clinical training scenarios and their implications for clinical psychology. As Rice (1997) points out, by building scenarios based on information that is currently available one can "play out their trajectories and relations so as to provide a detailed picture of the future" (p. 1176). Moreover, in light of the trajectories that are developed the discipline can plan for the future accordingly (Rice, 1997).

Training scenarios and their implications for clinical psychology

In the first scenario, the Boulder Model training framework is dead, practice-based clinical science training occurs in universities, and training for the professional practice of clinical psychology predominantly occurs in professional schools. How well might such a scenario serve clinical psychology as a science and profession?

Because professional schools accept and graduate considerably more students than clinical scientist programmes do, the effect would be that the numbers of professionally trained practitioners would vastly exceed the numbers of clinical scientists in practice settings. The client base practitioner-trained professionals would serve would possibly be more restricted than in the past, and there might be increasing competition for employment in community mental health centres. More specialised practice areas would probably be populated by clinical scientist graduates. However, because clinical scientist psychologists would be fewer in number to begin with, and would not spend as much time delivering services, many practice areas might go underserved. Hence, the overall scope of the contribution clinicians are would belikely to make in terms of treatment provision will be more restricted than in the past.

As the numbers of professionally focused clinicians would be very large, diversity among them would be likely to grow and they would prossibly split into various interest groups. This might result in greater professional divisions and the formation of more organisations and special interest groups (Rice, 1997). The effect of increased professional division would, in all likelihood, create intense confusion for employers and the public who sought professional clinical services.

Professionally trained practitioners would have some grounding in the scientific bases of behaviour, but are perhaps less sophisticated in their understanding of research because their research experiences and interests would be, overall, considerably more limited than clinical scientists. Hence, these two groups would find it difficult to communicate with one another through the literature and at professional and research gatherings.

Professionally trained clinicians might be quite disinclined to read the scientific literature. This might be because this literature is not readily understandable from a technical perspective, or because practitioners had a preference for a more intuitive approach to clinical practice, which might be incompatible with the intellectual rigor of systematic analyses. Theoretical differences would also separate clinical scientists from practitioners and contribute to the breach between science and practice. More practitioners might favour a psychodynamic orientation while clinical scientists, and most of the clinical literature, would probably reflect a cognitive-behaviour perspective. Thus, considerable energy and resources would have to be spent on developing innovative ways to keep practice in touch with research and research in touch with practice.

As Riley and Rush (2000) point out, the goals of organisations employing clinical psychologists are better served by clinical staff who engage in both service delivery and critical, systematic inquiry. This is because the combined service and research work of psychologists comes to be seen by the organisation as contributing to its ability to deal effectively with the problems it exists to address. In turn, funding for research initiatives and practice activities are more likely to be enhanced, along with personal and organisational accountability. Practitioner-trained clinical graduates might be less interested in research and, thus, would be less likely to contribute to furthering the aims of the organisations who employ them. By contrast, clinical psychologists trained in the clinical scientist model would be more likely to further the aims of the organisations who employ them. But, because these clinical psychologists would be far fewer in number than professionally trained clinical psychologists, their overall impact might be negligible.

Internship sites, Division 12 (Clinical Psychology) of the APA, licensing boards would all be predominantly populated by professionally trained clinical psychologists. Tensions between Division 12 members who have trained within the clinical scientist model and the professionally trained clinical psychologists would most likely rise due to their different interests. The effect of

rising tensions might lead to the establishment of a clinical science division and a clinical professional division. Licensing standards and clinical accreditation standards would probably also change in accord with the wishes of professionally trained clinical psychologists. In sum, the scenario just depicted would not be conducive to rapprochement throughout the many layers of clinical psychology. Indeed, such a scenario probably resembles the very situation the discipline has sought to avoid since the Boulder Conference established the discipline's scientist-practitioner identity.

In the second clinical training scenario, the professional school model of training does not exist. All clinical training occurs in universities with one, or more, of their own in-house clinics. Clinical training programmes comprise clinical scientist programmes and Boulder Model programmes. How might this scenario serve clinical psychology as a science and profession?

The majority of clinical graduates continue to enter practice careers across a broad array of settings as they have done since the Boulder Conference. Hence, clinical practice would preserve its breadth of coverage in society and the types of clinically relevant problems the field addressed. Because professional schools would no longer contribute to the count of practitioners, the numbers of clinical psychologists entering practice settings per year would drop from the current level of approximately 1,040 to 780 (i.e., the current number of doctorates awarded per year is 2,000, minus the 48% from professional schools, minus approximately 25% of graduates who enter university settings). In other words, the numbers of trained clinical psychologists produced each year would be greater than the numbers produced in the immediate years following the Boulder Conference (due to the fact that more programmes have been established), but less than the numbers currently produced today because of the demise of professional schools.

The overall amount of research conducted in the field might increase compared to the amount produced by Boulder graduates in the past because the field would include more clinicians who had more experience in research. Generally, the amount of time practitioners would spend engaged in the delivery of clinical services would remain at current levels. This is because clinical scientists would spend considerably less time in the delivery of services and Boulder Model graduates would continue as they have in the past. The effects of more research being conducted in the field might be that research funding is enhanced to an even greater extent than

it is at present, and perhaps speedier progress would be made with respect to the effectiveness-efficacy research agenda.

As more students training within the clinical scientist model would gain more practice-based research experience compared to their Boulder Model colleagues, and spend less of their training time learning how to be a therapist, the clinical science knowledge base might prosper more than it has in the past. It might be, for example, that clinical scientist students had more time to devote to developing skills in a wider variety of methods of data analysis and types of approaches to inquiry.

Boulder Model graduates and clinical scientist graduates would have little difficulty communicating with one another because their interests and capacities would overlap considerably, and many would probably share a common theoretical perspective. Hence, the relationship between science and practice would most likely be as good, or better, than in the past. In turn, few resources and less energy would be needed in order to maintain a strong and effective relationship between science and practice. Indeed, greater harmony might characterise clinical psychology from Division 12 through to internship sites and practice settings. Similarly, confusion in the minds of the public, employers and legislators about who, and what, clinical psychologists are, might be minimised.

The scenario just outlined is clearly preferable to the first scenario where science and practice are separated at the point of training and remain markedly distanced from one another thereafter. Moreover, the discipline's identity that was developed at the Boulder Conference, and which has served clinical psychology well, is preserved in the second scenario, or even strengthened.

Training scenarios and their implications aside, the fact of the matter is that professional schools are unlikely to disappear from the clinical training landscape. However, some sensible recommendations about how clinical psychology should proceed can be made in light of the findings of this thesis and the implications of the two scenarios depicted in this chapter.

Recommendations

It is suggested that research be undertaken to find out a great deal more about the products of professional schools of clinical psychology. For example, why do professional school graduates tend to perform more poorly on the national licensing examination for professional practice than

other clinical candidates? To what extent do professionally trained practitioners base their clinical activities on clinical science? Findings from such research could be used to help strengthen these programmes and the clinical graduates they produce. It is disturbing that we know so little about this group of clinical psychologists when nearly half of the professional field is represented by this group.

A commitment to diversity within clinical psychology also needs to be paralleled by a commitment to evaluation research. When evaluation research is underpinned by a sense of defensiveness it is hard to see how the discipline's reputation as a science based profession is not at risk of becoming tarnished. Moreover, the discipline's opportunities to evolve are likely to be significantly retarded to the disadvantage of all concerned.

Clinical programmes, and doctoral programmes in psychology generally, should update their science curriculum in accord with recent advances, such as in the areas of statistical methods of data analysis and approaches to inquiry, such as the most well developed qualitative research methods. The science curriculum should also include critical attention to contemporary philosophies of science that are most relevant for psychology. Both clinical science and the scientific practice of clinical psychology would be enhanced if students were to receive appropriate exposure in the ways just suggested, and in an environment that encourages the development of critical analysis.

References

Accredited doctoral programs in professional psychology: 1997. (1997). *American Psychologist, 52,* 1342-1353.

Aiken, L.S., West, S.G., Sechrest, L., Reno, R.R., Roediger, III, Scarr, S., Kazdin & Sherman, S.J. (1990). Graduate training in statistics, methodology, and measurement in psychology: A survey of PhD programs in North America. *American Psychologist, 45,* 721-734.

Altman, I. (1987). Centripetal and centrifugal trends in psychology. *American Psychologist, 42,* 1058-1069.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders (4th ed.).* Washington, DC: Author.

Arons, B.S., & Goodwin, F.K. (1995). Foreword. In P. Wohlford, H. Myers and J. Callan (Eds.), *Serving the seriously mentally ill: Public-academic linkages in services, research, and training* (pp.ix-x). American Psychological Association: Washington, DC.

Arnoult, L.H., & Anderson, C.A. (1988). Identifying and reducing causal reasoning biases in clinical practice. In D.C. Turk and P. Salovey (Eds.), *Reasoning, inference, & judgment in clinical psychology* (pp. 209-232). New York: The Free Press.

Barlow, D. (1981). On the relation of clinical research to clinical practice: Current issues, new directions. *Journal of Consulting and Clinical Psychology, 49,* 147-155.

Barlow, D. (Ed.). (1993). *Clinical handbook of psychological disorders (2nd ed.).* New York: The Guilford Press.

Barlow, D.H., Elser, J.L., & Vitali, A.E. (1998). In P.E. Nathan & J.M. Gorman (Eds.), *A guide to treatments that work* (pp. 288-318). New York: Oxford University Press.

Barlow, D., Hayes, S., & Nelson, R. (1984). *The scientist-practitioner: Research and accountability in clinical and educational settings.* New York: Pergamon Press.

Barret, G.V., & Depinet, R.L. (1991). A reconsideration of testing for competence rather than for intelligence. *American Psychologist, 46,* 1012-1024.

Belar, C., & Perry, N. (1992). National conference on scientist-practitioner education and training for the professional practice of psychology. *American Psychologist, 47,* 71-75.

Belar, C. (1998). Graduate education in clinical psychology: "We're not in Kansas anymore". *American Psychologist, 53,* 456-464.

Belar, C. (2000). Scientist-practitioner ≠ science + practice: Boulder is bolder. *American Psychologist, 55,* 249-250.

Bergin, A.E., Garfield, S.L. & Thompson, A.S. (1967). The Chicago Conference on clinical training and clinical psychology at Teachers College. *American Psychologist, 22,* 307-317.

Beutler, L., Williams, R., & Wakefield, P. (1993). Obstacles to disseminating applied psychological science. *Applied and Preventive Psychology, 2,* 53-58.

Beutler, L., Williams, R., Wakefield, P., & Entwistle, S. (1995). Bridging scientist and practitioner perspectives in clinical psychology. *American Psychologist, 50,* 984-994.

Bickman, L. (1989). Graduate education in clinical psychology. *American Psychologist, 42,* 1041-1047.

Blashfield, R.K., & Herkov, M.J. (1996). Investigating clinician adherence to diagnosis by criteria: A replication of Morey and Ochoa (1989). *Journal of Personality Disorders, 10,* 219-228.

Brems, C., Johnson, M.E., & Gallucci, P. (1996). Publication productivity of clinical and counseling psychologists. *Journal of Consulting and Clinical Psychology, 52,* 723-725.

Brown, G.D.A. (1990). Cognitive science and its relation to psychology. *The psychologist: Bulletin of the British psychological Society, 8,* 339-343.

Brown, W.R., & McGuire, J.M. (1976). Current psychological assessment practices. *Professional Psychology, 7,* 475-484.

Burr, V. (1995). *An introduction to social constructionism.* London: Routledge.

Buros, O.K. (Ed.). (1992). *The eleventh mental measurements yearbook.* Highland Park, New Jersey: Gryphon Press.

Butler, M., Retzlaff, P., & Vanderploeg, R. (1991). Neuropsychological test usage. *Professional Psychology: Research and Practice, 22,* 510-512.

Byrne, D.G. (1983). Attitudes to practice among Australian clinical psychologists. *Australian Psychologist, 18,* 55-64.

Byrne, D.G. (1982). Clinical psychology in Australia: A survey of activities and aspirations. *Australian Psychologist, 17,* 87-96.

Byrne, D.G., & Reinhart, M.I. (1990). Professional activities and theoretical orientations of Australian clinical psychologists. *Australian Psychologist, 25,* 103-114.

Camara, W.J., Nathan, J.S., & Puente, A.E. (2000). Psychological test usage: Implications in professional psychology. *Professional Psychology: Research and Practice, 31,* 141-154.

Caplan, P. (1991). How *do* they decide who is normal? The bizarre, but true, tale of the *DSM* process. *Canadian Psychology, 32,* 162-170.

Chalmers, A.F. (1976). *What is this thing called science?* St. Lucia: University of Queensland Press.

Chambers, M.J., Tazeau, Y..N., & Rozensky, R.H. (1993). The relationship between scientific and theoretical orientation among clinical psychology doctoral students. *Professional Psychology: Research and Practice, 24,* 20-26.

Cherry, D.K., Messenger, L.C., & Jacoby, A.M. (2000). An examination of training model outcomes in clinical psychology programs. *Professional Psychology: Research and Practice, 31,* 562-568.

Clark Committee. (1967). The scientific and professional aims of psychology. *American Psychologist, 22,* 49-76.

Cohen, L.H. (1977). Factors affecting the utilization of mental health evaluation research findings. *Professional Psychology, 8,* 526-534.

Cohen, L.H. (1979a). The research readership and information source reliance of clinical psychologists. *Professional Psychology, 10,* 780-785.

Cohen, L.H. (1979b). Clinical psychologists' judgments of the scientific merit and clinical relevance of psychotherapy outcome research. *Journal of Consulting and Clinical Psychology, 47,* 421-423.

Cohen, L.H. (1980). Methodological prerequisites for psychotherapy outcome research: A survey of clinical psychologists. *Knowledge: Creation, Diffusion, Utilization, 2,* 263-272.

Cohen, L.H., Sargent, M.M., & Sechrest, L. (1986). Use of psychotherapy research by professional psychologists. *American Psychologist, 41,* 198-206.

Cohen, L.H., & Suchy, K. (1979). The bias in psychotherapy research evaluation. *Journal of Clinical Psychology, 35,* 184-187.

Conway, J.B. (1988). Differences among clinical psychologists: Scientists, practitioners, and scientist-practitioners. *Professional Psychology: Research and Practice, 19,* 642-655.

Coldwell, S., Getz, T., Milgrom, P., Prall, C.W., Spadafora, A., & Ramsay, D.S. (1998). CARL: A LabVIEW 3 computer program for conducting exposure therapy for the treatment of dental injection fear. *Behaviour Research and Therapy, 36,* 429-441.

Craighead, W.E., Craighead, L.W., & Ilardi, S.S. (1998). Psychosocial treatments for major depressive disorder. In P.E. Nathan and J.M. Gorman (Eds.), *A guide to treatments that work* (226-248). New York: Oxford University Press.

Crits-Christoph, P. (1998). Psychosocial treatments for personality disorders. In P.E. Nathan and J.M. Gorman (Eds.), *A guide to treatments that work* (pp. 544-553). New York: Oxford University Press.

Cull, D.M., & Wehner, D.M. (1998). Australian Aborigines: Cultural factors pertaining to the assessment and treatment of Australian Aboriginal sexual offenders. In W.L. Marshall, Y.M. Fernandez, et al (Eds.), *Sourcebook of treatment programs for sexual offenders: Applied clinical psychology* (pp. 431-444). New York: Plenum Press.

Curd, M.V. (1980). The logic of discovery: an analysis of three approaches. In T. Nickles (Ed.), *Scientific discovery, logic and rationality,* (pp. 201-219). Dodrecht: Reidel.

Dar, R., Serlin, R.C., & Omer, H. (1994). Misuse of statistical tests in three decades of psychotherapy research. *Journal of Consulting and Clinical Psychology, 62,* 75-82.

Dawes, R.M., Faust, D., & Meehl, P.E. (1989). Clinical versus actuarial judgment. *Science, 243,* 1668-1674.

Davis, R.T., Blashfield, R.K., & McElroy, R.A. (1993). Weighting criteria in the diagnosis of personality disorder: A demonstration. *Journal of Abnormal Psychology, 102,* 319-322.

Davison, G.C. (1998). Being bolder with the Boulder Model: The challenge of education and training in empirically supported treatments. *Journal of Consulting and Clinical Psychology, 66,* 163-167.

Davison, G.C., & Lazarus, A.A. (1994). Clinical innovation and evaluation: Integrating practice with inquiry. *Clinical Psychology: Science and Practice, 1,* 157-168.

Dawes, R.M., Faust, D., & Meehl, P.E. (1989). Clinical versus actuarial judgment. *Science, 243,* 1668-1674.

Delprato, D.J. (1995). Interbehavioural psychology: Critical, systematic, and integrative approach to clinical services. In W. O'Donahue and L. Krasner (Eds.), *Theories of behavior therapy: Exploring behavior change,* (pp. 609-636). Washington, DC: American Psychological Association.

Devitt, M., & Sterelny, K. (1987). *Language and reality: An introduction to the philosophy of language.* Oxford: Blackwell.

Dewsbury, D.A. (1997). On the evolution of divisions. *American Psychologist, 52,* 733-741.

Dixon, R.A. (1983). Theoretical proliferation in psychology: a plea for sustained disunity. *The Psychological Record, 33,* 337-340.

Drabman, R.S. (1985). Graduate training of scientist-practitioner-oriented clinical psychologists: Where we can improve. *Professional Psychology: Research and Practice, 16,* 623-633.

Duran V.M., Blanchard, E.B., & Mindell, J.A. (1988). Training in projective testing: Survey of clinical training directors and internship directors. *Professional Psychology: Research and Practice, 19,* 236-238.

Education and Training Board. (1967). The evaluation of university programs in clinical and counselling psychology. *American Psychologist, 22,* 153-155.

Ellis, H.C. (1992). Graduate education in psychology: Past, present, and future. *American Psychologist, 47,* 570-576.

Eyde, L. D., & Childs, R.A. (2000). Qualifications of assessment faculty in clinical psychology doctoral programs: An analysis of American Psychological Association membership data. *Professional Psychology: Research and Practice, 31,* 165-169.

Foote, R.C., Schuhmann, E.M., Jones, M.L., & Eyberg, S.M. (1998). Parent-child interaction therapy: A guide for clinicians. *Clinical Child Psychology and Psychiatry, 3,* 361-373.

Fowler, R.D. (1995). Preface. In P. Wohlford, H. Myers and J. Callan (Eds.), *Serving the seriously mentally ill: Public-academic linkages in services, research, and training* (p.xi). American Psychological Association: Washington, DC.

Fox, R.E. (1994). Training professional psychologists for the twenty-first century. *American Psychologist, 49,* 200-206.

Fox, R.E. & Barclay, A. (1989). Let a thousand flowers bloom: Or weed the garden? *American Psychologist, 44,* 55-59.

Foxx, R.M. (1998). A comprehensive treatment program for inpatient adolescents. *Behavioral Interventions, 13,* 67-77.

Francis, J.R., & Aronson, H. (1990). Communicative efficacy of psychotherapy research. *Journal of Consulting and Clinical Psychology, 58,* 368-370.

Frank, G. (1984). The Boulder Model: History, rationale, and critique. *Professional Psychology: Research and Practice, 15,* 41-435.

Fristad, M.A., Gavazzi, S.M., & Soldano, K.W. (1998). Multi-family psychoeducation groups for childhood mood disorders: A program description and preliminary efficacy data. *Contemporary Family Therapy, 20,* 385-402.

Gaddy, C.D., Charlot-Swilley, Nelson, P.D. & Reich. (1995). Selected outcomes of accredited programs. *Professional Psychology: Research and Practice, 26,* 507-513.

Garb, H.N. (1998). *Studying the clinician: Judgment research and psychological assessment.* Washington, DC: American Psychological Association.

Garfield, S.L. (1994). Eclecticism and integration in psychotherapy: Developments and issues. *Clinical Psychology: Science and Practice, 1,* 123-137.

Garfield, S.L. & Kurtz, R. (1976). Clinical psychologists in the 1970s. *American Psychologist, 31,* 1-9.

Gergen, K. (1985). The social constructionist movement in modern psychology. *American Psychologist, 40,* 266-275.

Glymour, C. (1984). Explanation and realism. In J. Leplin (Ed.), *Scientific realism* (pp. 173-192). California: University of California Press.

Goldman, A. (1993). *Philosophical applications of cognitive science.* Colorado: Westview.

Graham, S.R., & Fox, R.E. (1991). Postdoctoral education for professional practice. *American Psychologist, 46,* 1033-1035.

Greenwood, J.D. (1992). Realism, empiricism and social constructionism: Psychological theory and the social dimensions of mind and action. *Theory and Psychology, 2,* 131-151.

Haig, B.D. (1996). Grounded theory as scientific method. In *Philosophy of education 1995* (pp. 281-290). Urbana: University of Illinois Press.

Haig, B.D. (1999). Construct validation and clinical assessment. *Behaviour Change, 16,* 64-73.

Haig, B.D. (2000). Statistical significance testing, hypothetico-deductive method, and theory evaluation. *Behavioral and Brain Sciences, 23,* 292-293.

Haig, B.D. (2001). Unpublished lecture series. University of Canterbury. New Zealand.

Hallahan, M., & Rosenthal, R. (1995). Statistical power: Concepts, procedures, and applications. *Behavior research and therapy, 34,* 489-499.

Hanna, F.J. (1994). A dialectic of experience: A radical empiricist approach to conflicting theories of psychotherapy. *Psychotherapy, 31,* 124-137.

Hare-Mustin, R.T., & Marecek, J (1988). The meaning of difference: Gender theory, postmodernism, and psychology. *American Psychologist, 43,* 455-464.

Harré, R. (1976). The constructive role of models. In L. Collins (Ed.), *The use of models in the social sciences* (pp. 16-43). London: Travisock

Harré, R. (1986). *Varieties of realism.* Oxford: Blackwell.

Hayes, S.C. (1981). Single case experimental design and empirical clinical practice. *Journal of Consulting and Clinical Psychology, 49,* 193-211.

Haynes, S.N., Lemsky, C., & Sexton-Radek, K. (1987). Why clinicians infrequently do research. *Professional Psychology: Research and Practice, 18,* 515-519.

Henwood, K., & Pigeon, N. (1992). Qualitative research and psychological theorising. *British Journal of Psychology, 83,* 97-111.

Hershey, J.M., Kopplin, D.A., & Cornell, J.E. (1991). Doctors of Psychology: Their career experiences and attitudes toward degree and training. *Professional Psychology: Research and Practice, 22,* 351-356.

Hinkle, D. E., Wiersma, W., & Jurs, S.G. (1994). *Applied statistics for the behavioral sciences* (3rd ed.). Boston: Houghton Mifflin.

Hoch, E., Ross., A., & Winder, C. (1966). Conference on the professional preparation of clinical psychologists: A summary. *American Psychologist, 47,* 55-66.

Hooker, C.A. (1975). On global theories. *Philosophy of Science, 45,* 152-179.

Hooker, C.A. (1987). *A realistic theory of science.* New York: State University of New York Press.

Hookway, C. (2000). *Truth, rationality, and pragmatism: Themes from Peirce.* Oxford: Oxford University Press.

Hospers, J. (1956). *An introduction to philosophical analysis.* London: Routledge & Kegan Paul.

Howard, G.S. (1985). The role of values in the science of psychology. *American Psychologist, 40,* 255-265.

Howson, C., & Urbich, P. (1989). *Scientific reasoning: The Bayesian approach.* Illinois: Open Court.

Hunsley, J. (1996). Assessment practices of clinical psychologists. *Professional Psychology: Research and Practice, 27,* 315-316.

Hunter, J.E., & Schmidt, F.L. (1990). *Methods of meta-analysis.* Newbery Park: Sage Publications.

Jensen, J.P., Bergin, A.E., & Greaves, D.W. (1990). The meaning of eclecticism: New survey and analysis of components. *Professional Psychology: Research and Practice, 21,* 124-130.

Jones, N.F. (1985). Do training models really influence scholarly productivity? *Professional Psychology: Research and Practice, 16,* 467-468.

Josephson, J.R., & Josephsen, S.G. (1994). (Eds.). *Abductive inference.* New York: Cambridge University Press.

Kalmar, D. A., & Sternberg, R.J. (1988). Theory knitting: an integrative approach to theory development. *Philosophical Psychology, 1,* 153-170.

Kaplan, R.M., & Saccuzo, D.P. (1993). *Psychological testing: Principles, applications, and issues (3rd ed.).* San Diego: Brooks/Cole.

Kazdin, A.E. (1981). Drawing valid inferences from case studies. *Journal of Consulting and Clinical Psychology, 49,* 183-192.

Kazdin, A.E., Siegal, T.C., & Bass, D. (1990). Drawing on clinical practice to inform research on clinical and adolescent psychotherapy: Survey of practitioners. *Professional Psychology: Research and Practice, 21,* 189-198.

Keane, T.M. (1998). Psychological and behavioral treatments of post-traumatic stress disorder. In P.E. Nathan and J.M. Gorman (Eds.)., *A guide to treatments that work* (pp 398-407). New York: Oxford University Press.

Keeley, S.M., Shemberg, K.M., & Zaynor, L. (1988). Dissertation research in clinical psychology: Beyond positivism? *Professional Psychology: Research and Practice, 19,* 216-222.

Kendall, P.C. (1998). Empirically supported psychological therapies. *Journal of Consulting and Clinical Psychology, 66,* 3-6.

Klerman, G.L., Weissman, M.M., Rounsaville, B.J., & Chevron, E.S. (1984). *Interpersonal psychotherapy of depression.* New York: Basic Books.

Kline, P. (1993). *The handbook of psychological testing.* London: Routledge.

Korman, M. (1974). National conference on levels and patterns of professional training in psychology. *American Psychologist, 29,* 441-449.

Kubiszyn, T.M., Meyer, G.J., Finn, S.E., Eyde, L.D., Kay., G.C., Moreland, K.L., Dies, R.R., & Eisman, E.J. (2000). Empirical support for psychological assessment in clinical health care settings. *Professional Psychology: Research and Practice, 31,* 119-130.

Laughlin, P., & Worley, J. (1991). Roles of the American Psychological Association and the Veterans Administration in the development of internships in psychology. *American Psychologist, 46,* 430-436.

Leahey, T. H. (1991). *A history of modern psychology.* New Jersey: Prentice Hall.

Leitenberg, H. (1974). Training clinical researchers in psychology. *Professional Psychology, 5,* 59-69.

Leplin, J. (1984). Truth and scientific progress. In J. Leplin (Ed.), *Scientific realism,* (pp. 193-217). California: University of California Press.

Levine, B.G., & Nebelkopf, E. (1998). A Russian-American approach to the treatment of alcoholism in Russia: Preliminary results. *Journal of Psychoactive Drugs, 30,* 25-32.

Lezak, M. (1995). *Neuropsychological assessment (3rd ed.).* New York: Oxford University Press.

Lezenweger, M.F., & Clarkin, J.F. (1996). The personality disorders: History, classification, and research issues. In J.F. Clarkin and M.F. Lezenweger (Eds.), *Major theories of personality disorders* (pp. 1-35). New York: The Guilford Press.

Longshore, D., Grills, C., Annon, K., & Grady, R. (1998). Promoting recovery from drug abuse: An Africentric intervention. *Journal of Black Studies, 28,* 319-332.

Lorian, R.P. (1991). Prevention and public health: Psychology's response to the nation's health care crisis. *American Psychologist, 46,* 516-519.

Lovell, D., & Jemelka, R. (1998). Coping with mental illness in prisons. *Family Community Health, 21,* 54-66.

Lubin, B., Larsen, R.M., & Matarazzo, J.D. (1984). Patterns of psychological test usage in the United States: 1935 - 1982. *American Psychologist, 39,* 451-454.

Lykken, D. (1991). What's wrong with psychology anyway? In D. Cicchetti & W. M. Grove (Eds.), *Thinking clearly about psychology, Volume 1: Matters of public interest.* Minneapolis: University of Minneapolis Press.

Manicas, P., & Secord, P. (1983). Implications for psychology of the new philosophy of science. *American Psychologist, 38,* 399-413.

Marshall, W.L. (1993). Anachronistic obstacles to effective training in research: The dissertation, the thesis, an the comprehensive exam. *Canadian Psychology, 34,* 176-185.

Martin, P.R. (1989). The scientist-practitioner model in clinical psychology: Time for a change? *Australian Psychologist, 24,* 71-92.

Mayne, T.J., Norcross, J.C., & Sayette, M.A. (1994). Admission requirements, acceptance rates, and financial assistance in clinical psychology programs. *American Psychologist, 49,* 806-811.

McClelland, D.C. (1973). Testing for competence rather than for "intelligence". *American Psychologist, 28,* 1-14.

McGinnis, J.M. (1991). Health objectives for the nation. *American Psychologist, 46,* 520-524.

Meehl, P.E. (1992). Cliometric metatheory: The actuarial approach to empirical, history-based philosophy of science. *Psychological Reports, 71,* 339-467.

Meltzoff, J. (1974). Research training for clinical psychologists: Point-counterpoint. *Professional Psychology: Research and Practice, 15,* 203-209.

Miller, L. (1998). Preventive intervention for families of preschoolers at risk for conduct disorders. In J.M. Briesmeister, C.E. Schaefer, et al (Eds.), *Handbook of parent training: Parents as co-therapists for children's behavior problems* (pp.177-201). New York: John Wiley & Sons.

Morey, L.C., & Ochoa, E.S. (1989). An investigation of adherence to diagnostic criteria: Clinical diagnosis of the DSM-III personality disorders. *Journal of Personality Disorders, 3,* 180-192.

Morrow-Bradley, C., & Elliot, (1986). Utilization of psychotherapy research by practicing psychotherapists. *American Psychologist, 41,* 188-197.

Murphy, K.R., & Davidshofer, C.O. (1994). *Psychological testing: Principles and applications (3rd ed.).* Englewood Cliffs: Prentice Hall.

Myers, D.G. (1993). *Social psychology (4th ed.).* New York: McGraw-Hill.

Myers, H.F. (1995). Ethnic minorities with mental disorders. In P. Wohlford, H. Myers and J. Callan (Eds.), *Serving the seriously mentally ill: Public-academic linkages in services, research, and training* (pp. 43-50). American Psychological Association: Washington, DC.

Nathan, P.E. (2000). The Boulder Model: A dream deferred - or lost? *American Psychologist, 55,* 250-252.

Nathan, P.E., & Gorman, J.M. (1998). *A guide to treatments that work.* New York: Oxford University Press.

Neiser, Boodoo, Bouchard, Boykin, Brody, Ceci, Halpern, Loehlin, Perloff, Sternberg & Urbina, (1996). Intelligence: Knowns and unknowns. *American Psychologist, 51,* 77-101.

Nelson, R.O. (1981). Realistic dependent measures for clinical use. *Journal of Consulting and Clinical Psychology, 49,* 168-182.

Nelson-Gray, R. O. (1994). The scientist-practitioner model revisited: Strategies for implementation. *Behaviour Change, 11,* 61-75.

Newman, J.H. (1998). Rapprochement among undergraduate psychology, science, mathematics, engineering, and technology education. *American Psychologist, 53,* 1032-1043.

Nickles, T. (1981). What is a problem that we may solve it? *Synthese, 47,* 85-118.

Nixon, M. (1990). Professional training in psychology: Quest for international standards. *American Psychologist, 45,* 1257-1262.

Norcross. J.C., & Prochaska, J.O. (1983). Clinicians' theoretical orientations: Selection, utilization, and efficacy. *Professional Psychology: Research and Practice, 14,* 197-208.

Norcross, J.C., Sayette, M.A., Mayne, Karg, R.H., & Turkson, M.A. (1998). Selecting a doctoral program in professional psychology: Some comparisons among PhD counseling, PhD clinical, and PsyD clinical psychology programs. *Professional Psychology: Research and Practice, 29,* 609-614.

Norcross, J.C., & Wogan, M. (1983). Relationship of behavior therapists' characteristics, activities, and clients to reported practices in therapy. *Professional Psychology: Research and Practice, 14,* 44-56.

Omer, H., & Dar, R. (1992). Changing trends in three decades of psychotherapy research: The flight from theory into pragmatics. *Journal of Consulting and Clinical Psychology, 60,* 88-93.

O'Donahue, W. (1989). The (even) bolder model: The clinical psychologist as metaphysician-scientist-practitioner. *American Psychologist, 44,* 1460-1468.

O'Gorman, J.G. (1994). A commentary on the observations of Nixon, of Sheehan, and of Gillam on practices and needs in psychological training. *Australian Psychologist, 29,* 181-183.

O'Sullivan, J.J., & Quevillon, R.P. (1992). 40 years later: Is the Boulder Model still alive? *American Psychologist, 47,* 67-70.

Orlinsky, D.E. (1994). Research based knowledge as the emergent foundation for clinical practice in psychotherapy. In P.F. Talley, H.H. Strupp and S.F. Butler (Eds.), *Psychotherapy research and practice: Bridging the gap* (pp. 99-123). New York: BasicBooks.

Page, A. (1996). The scientist-practitioner model: More faces than Eve. *Australian Psychologist, 31,* 103-108.

Papineau, D. (1996). Introduction. In D. Papineau (Ed.), *The philosophy of science* (pp.1-20). Oxford: Oxford University Press.

Parker, K.C.H., Hanson, R.K., & Hunsley, J. (1988). In A.E. Kazdin (1992) (Ed.), *Methodological issues and strategies in clinical research* (pp. 217-233). Washington, DC: American Psychological Association.

Peterson, D.R. (1985). Twenty years of practitioner training in psychology. *American Psychologist, 40,* 441-451.

Peterson, D.R. (2000). Scientist-practitioner or scientific practitioner? *American Psychologist, 55,* 252-253.

Peterson, D.R., Eaton, M.M., Levine, A.R., & Snepp, F.P. (1982). Career experiences of doctors of psychology. *Professional Psychology, 13,* 268-276.

Pfeiffer, S.I., Burd, S., & Wright, A. (1992). Clinicians and research: Recurring obstacles and some possible solutions. *Journal of Consulting and Clinical Psychology, 48,* 140-145.

Pinker, S. (1997). *How the mind works.* London: Penguin Books.

Piotrowski, C., & Keller, J.W. (1984). Psychodiagnostic testing in APA-approved clinical psychology programs. *Professional Psychology: Research and Practice, 15,* 450-456.

Piotrowski, C., & Lubin, B. (1990). Assessment practices of health psychologists: Survey of APA Division 38 clinicians. *Professional Psychology: Research and Practice, 21,* 99-106.

Pylyshyn, Z. W. (1984). *Computation and cognition: Towards a foundation for cognitive science.* Cambridge, Mass.: MIT Press.

Prilleltensky, I. (1989). Psychology and the status quo. *American Psychologist, 44,* 795-802.

Psillos, S. (1999). *Scientific realism: How science tracks the truth.* London: Routledge.

Raimy, V.C. (1950). (Ed.). *Training in clinical psychology.* Englewood Cliffs, N.J.: Prentice-Hall.

Resolutions approved by the national conference on graduate education in psychology. *American Psychologist, 42,* 1070-1084.

Rice, C.E. (1997). The scientist-practitioner split and the future of psychology. *American Psychologist, 52,* 1173-1181.

Riley, D.N., & Rush, C. A. (2000). Psychologists as agents of social change: The scientist-practitioner model in action. The *Bulletin*, No. 98, 25-29.

Rock, D.L. (1994). Clinical judgment survey of mental-health professionals: I. An assessment of opinions, ratings, and knowledge. *Journal of Clinical Psychology, 50,:* 941-950.

Rock, D.L., & Bransford, J.D. (1992). An empirical evaluation of three components of the tetrahedron model of clinical judgment. *The Journal of Nervous and Mental Disease, 180,* 560-565.

Rosenau, P. (1992). Modern and postmodern science: Some contrasts. *Review, XV,* 49-89.

Rossini, E.D., & Moretti, R.J. (1997). Thematic Apperception Test (TAT) interpretation: Practice recommendations from a survey of clinical psychology doctoral programs accredited by the American Psychological Association. *Professional Psychology: Research and Practice, 28,* 393-398.

Routh, D. (2000). The field of clinical psychology: A response to Thorne. *Journal of Clinical Psychology, 56,* 275-286.

Royce, J.R. (1985). The problem of theoretical pluralism in psychology. In K.B. Madsen and L.P. Mos (Eds.). *Annals of Theoretical Psychology, 3,* 297-315.

Rubinson, E., Asnis, G.M., & Friedman, J.M. (1988). Knowledge of the diagnostic criteria for major depression: A survey of mental health professionals. *The Journal of Nervous and Mental Disease, 176,* 480-484.

Salmon, W.C. (1996). Rationality and objectivity in science *or* Tom Kuhn meets Tom Bayes. In D. Papineau (Ed.), *The philosophy of science,* (pp. 256-289). Oxford: Oxford University Press.

Sanchez-Hucles, J., & Cash, T.F. (1992). The dissertation in professional psychology programs: 1. A survey of clinical directors on requirements and practices. *Professional Psychology: Research and Practice, 23,* 59-62.

Sarason, S. (1981). An asocial psychology and a misdirected clinical psychology. *American Psychologist, 36,* 827-836.

Sargent, M, & Cohen, L.H. (1983). Influence of psychotherapy research on clinical practice: An experimental survey. *Journal of Consulting and Clinical Psychology, 51,* 718-720.

Sayette, M.A., & Mayne, T.J. (1990). Survey of current clinical research trends in clinical psychology. *American Psychologist, 45,* 1263-1266.

Schmidt, F.L. (1996). Statistical significance testing and cumulative knowledge in psychology: Implications for training of researchers. *Psychological Methods, 1,* 115-129.

Sechrest, L. (1992). The past future of clinical psychology: A reflection on Woodworth (1937). *Journal of Consulting and Clinical Psychology, 60,* 18-23.

Sechrest, L., & Scott, A. (1995). Assessing the competencies of clinical psychologists. In P. Wohlford, H. Myers and J. Callan (Eds.), *Serving the seriously mentally ill: Public-academic linkages in services, research, and training* (pp. 185-194). American Psychological Association: Washington, DC.

Secord, P. (1990). The need for a radically new human science. *Annals of Theoretical Psychology, 6,* 75-97.

Seligman, M.E.P. (1998). Afterword - A plea. In P.E. Nathan and J.M. Gorman (Eds.), *A guide to treatments that work* (pp. 568-571). New York: Oxford University Press.

Shakow, D. (1969). *Clinical psychology as science and profession: A forty-year odyssey.* Chicago: Aldine.

Sheehan, P.W. (1994). Psychology as a science and a profession: An Australian perspective. *Australian Psychologist, 29,* 174-175.

Shemberg, K., Keeley, S., & Blum, M. (1989). Attitudes toward traditional and nontraditional dissertation research: Survey of directors of clinical training. *Professional Psychology: Research and Practice, 20,* 190-192.

Sheridan, E.P., Matarazzo, J.D., & Nelson, P.D. (1995). Accreditation of psychology's graduate professional education and training programs: An historical perspective. *Professional Psychology: Research and Practice, 26,* 386-392.

Sheridan, C.L., & Radmacher, S.A. (1992). *Health psychology: Challenging the biomedical model.* New York: John Wiley.

Skinner, L.J., Berry, K.K., & Jackson, T.L. (1994). Accreditation of doctoral psychology training programs: Results of a nationwide survey. *Professional Psychology: Research and Practice, 25,* 296-299.

Simionato, R. (1991). The link between empirical research, epistemic values, and psychological practice. *Australian Psychologist, 26,* 123-127.

Sloan, K.L., & Rowe, G. (1998). Substance abuse and psychiatric illness: Treatment experience. *American Journal of Drug and Alcohol Abuse, 24,* 589-601.

Snepp, F.P., & Peterson, D.R. (1988). Evaluative comparison of PsyD and PhD students by clinical internship supervisors. *Professional Psychology: Research and Practice, 19,* 180-183.

Spencer, R. (1998). Fostering resistance through relationships in a feminist hospital program. *Women and Therapy, 21,* 101-111.

Spengler, P.M., Strohmer, D.C., Dixon, D.N., & Shivy, V.A. (1995). A scientist-practitioner model of psychological assessment: Implications for training, practice and research. *The Counseling Psychologist, 23,* 506-534.

Stricker, G. (1992). The relationship of research to practice. *American Psychologist, 47,* 543-549.

Stricker, G. (2000). The scientist-practitioner model: Ghandi was right again. *American Psychologist, 55,* 253-254.

Sullivan, K., & Bowden, S.C. (1997). Which tests do neuropsychologists use? *Journal of Consulting and Clinical Psychology, 53,* 657-661.

Sullivan, K., & Bowden, S.C. (1997). Which tests do neuropsychologists use? *Journal of Clinical Psychology, 53,* 657-661.

Sundberg, N.D. (1961). The practice of psychological testing in clinical services in the United States. *American Psychologist, 16,* 79-83.

Sweeney, J.A., Clarkin, J.F., & Fitzgibbon. (1987). Current practice of psychological assessment. *Professional Psychology: Research and Practice, 18,* 377-380.

Talbot, N.L., Houghtalen, R.P., Cyrulik, S., Betz, A., Barkun, M., Duberstein, P.R., & Lyman, C.W. (1998). Women's safety in recovery: Group therapy for patients with a history of childhood sexual abuse. *Psychiatric Services, 49,* 213-217.

Talley, P.F., Strupp, H.H., & Butler, S.F. (1994). Conclusion. In P.F. Talley, H.H. Strupp, and B.F. Butler (Eds.), *Psychotherapy research and practice: Bridging the gap* (pp. 254-262). New York: BasicBooks.

Thagard, P. (1989). Explanatory coherence. *Behavioral and Brain Sciences, 12,* 435-502.

Thagard, P. (1992). *Conceptual revolutions.* Princeton: Princeton University Press.

Thorndike, R.L., Hagen, E.P., & Sattler, J.M. (1986). *The Stanford-Binet Intelligence Scale* (4th ed.). Chicago: Riverside.

Trierweiler, S., & Stricker, G. (1998). *The scientific practice of professional psychology.* New York: Plenum Press.

Tryon, G.S. (1983). Professional publications of most use to full-time private practitioners. *Professional Psychology: Research and Practice, 14,* 549-553.

Turk, D.C., & Salovey, P. (1988). *Reasoning, inference, & judgment in clinical psychology.* New York: The Free Press.

Tukey, J.W. (1977). *Exploratory data analysis.* Reading: Addison-Wesley.

Twemlow, S.W., & Sacco, F.C. (1998). The application of traditional martial arts practice and theory to the treatment of violent adolescents. *Adolescence, 33,* 505-518.

Tyler, J.D., & Clark, J.A. (1987). Clinical psychologists reflect on the usefulness of various components of graduate training. *Professional Psychology: Research and Practice, 18* 381-384.

Wade, T.C., & Baker, T.B. (1977). Opinions and use of psychological tests: A survey of clinical psychologists. *American Psychologist, 32,* 874-882.

Wakefield, J.C. (1992). The concept of mental disorder: On the boundary between biological facts and social values. *American Psychologist, 47,* 373-388.

Ward, T., & Haig, B.D. (1997). Abductive reasoning and clinical assessment. *Australian Psychologist, 32,* 1-8.

Ward, T., Vertue, F.M., & Haig, B.D. (1999). Abductive method and clinical assessment in practice. *Behaviour Change, 16,* 49-63.

Watson, N., Johnson, J., Caddy, G., & Rimm, D. (1981). Standards in the education of professional psychologists: The resolutions of the conference at Virginia Beach. *American Psychologist, 36,* 514-519.

Weins, A.N. (1993). Postdoctoral education-training for specialty practice: Long anticipated, finally realised. *American Psychologist, 48,* 415-422.

Weinstein, M., & Rossini, E.D. (1998). Academic training in group psychotherapy in clinical psychology doctoral programs. *Psychological Reports, 82,* 955-959.

Westen, D. (1997). Divergences between clinical and research methods for assessing personality disorders: Implications for research and the evolution of Axis II. *American Journal of Psychiatry, 154,* 895-903.

White, P.A. (1993). *Psychological metaphysics.* London: Routledge.

Widiger, T.A., & Costa, P.T. (1994). Personality and personality disorders. *Journal of Abnormal Psychology, 103,* 78-91.

Wisocki, P.A., Grebstein, L.C., & Hunt, J.B. (1994). Directors of clinical training: An insider's perspective. *Professional Psychology: Research and Practice, 25,* 482-488.

Wohlford, P., Callan, J.E., & Myers, H.F. (1995). Public-academic linkages. In P. Wohlford, H. Myers and J. Callan (Eds.), *Serving the seriously mentally ill: Public-academic linkages in services, research, and training* (pp. 3-15). American Psychological Association: Washington, DC.

Wohlford, P., Myers, H., & Callan, J. (Eds.). (1995). *Serving the seriously mentally ill: Public-Academic linkages in services, research, and training.* American Psychological Association: Washington, DC.

Wood, J.M., Lilienfeld, S.O., Garb, H.N. & Nezworski (2000). Limitations of the Rorschach as a diagnostic tool: A reply to Garfield (2000), Lerner (2000) and Weiner (2000). *Journal of Clinical Psychology, 56,* 441-448.

Worrall, J. (1996). Structural realism: The best of both worlds. In D. Papineau (Ed.), *The philosophy of science* (pp. 139-165). Oxford: Oxford University Press.

Yu, L.M., Rinaldi, S.A., Templer, D.I., Colbert, L.A., Siscoe, K., Van Pattern, K. (1997). Score on the Examination for Professional Practice in Psychology as a function of attributes of clinical psychology graduate programmes. *Psychological Science, 8,* 347-350.

Zachar, P., & Leong, F.T.L. (2000). A 10-year longitudinal study of scientist and practitioner interests in psychology: Assessing the Boulder Model. *Professional Psychology: Research and Practice, 31,* 575-580.